

FINAL REPORT

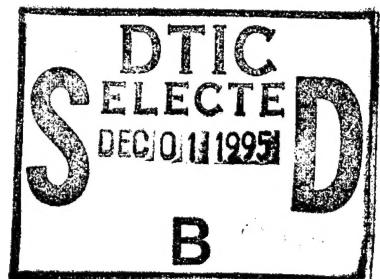
HISTORICAL BACKGROUND DOCUMENTATION RESEARCH
FOR THE LOCK HAVEN FLOOD PROTECTION PROJECT
CLINTON COUNTY, PENNSYLVANIA

By: Scott D. Heberling
and
Philip T. Fitzgibbons

A Report Prepared by
Vendel Enviro-Industrial Consultants, Inc.
1720 Larsen Drive
Pittsburgh, Pennsylvania 15243

and

Submitted to
International Technology Corporation
165 Fieldcrest Avenue
Edison, New Jersey 08818



in

Partial Fulfillment of Contract Number DACW31-85-D-0006
Department of the Army
Baltimore District, Corps of Engineers
Planning Division
P.O. Box 1715
Baltimore, Maryland 21203-1715

19951130 094

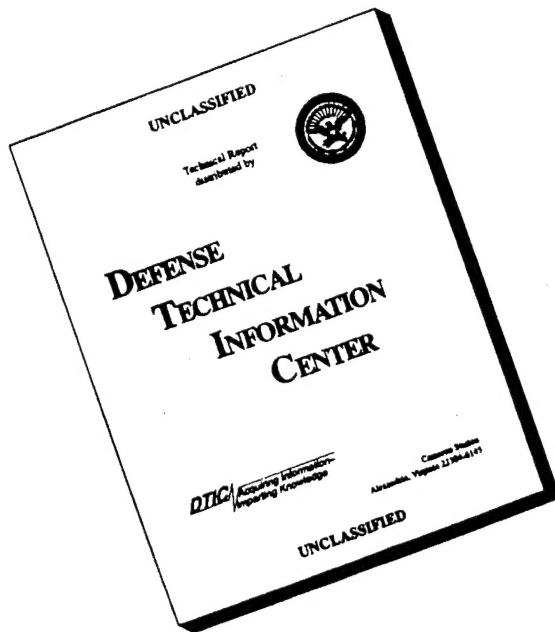
15 December 1987

DTIC QUALITY INSPECTED 8

DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE

DTIC QUALITY INSPECTED 5

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST
QUALITY AVAILABLE. THE
COPY FURNISHED TO DTIC
CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO
NOT REPRODUCE LEGIBLY.

FINAL REPORT

HISTORICAL BACKGROUND DOCUMENTATION RESEARCH
FOR THE LOCK HAVEN FLOOD PROTECTION PROJECT
CLINTON COUNTY, PENNSYLVANIA

By: Scott D. Heberling
and
Philip T. Fitzgibbons

A Report Prepared by
Vendel Enviro-Industrial Consultants, Inc.
1720 Larsen Drive
Pittsburgh, Pennsylvania 15243

and

Submitted to
International Technology Corporation
165 Fieldcrest Avenue
Edison, New Jersey 08818

in

Partial Fulfillment of Contract Number DACW31-85-D-0006
Department of the Army
Baltimore District, Corps of Engineers
Planning Division
P.O. Box 1715
Baltimore, Maryland 21203-1715

15 December 1987

Frank J. Vento
Frank J. Vento, Ph.D.
President - Co-Director

Philip T. Fitzgibbons
Philip T. Fitzgibbons
Secretary - Co-Director

TABLE OF CONTENTS

Table of Contents.....	i
List of Figures.....	ii
List of Tables.....	iii
List of Appendix.....	iii
Purpose of Historical Documentation Study.....	1
Historical Research Methodology.....	5
Historical Overview of the Lock Haven Study Area.....	7
Lock Haven Borough.....	8
Lock Haven Airport Extension and Clearance Zones.....	35
Flemington Borough.....	36
Lockport.....	38
Monseytown/Water Valley Areas.....	43
Research Questions and Topics for the Lock Haven Study Area....	53
Research Strategy.....	56
References.....	60
Appendix A.....	64

-i-

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

LIST OF FIGURES

Figure 1.	General View of the Lock Haven Flood Protection Project.....	2
Figure 2.	Distribution of Various Hotels, Churchs, Govt. Offices, Businesses and Industries in Lock Haven and Lockport ca. 1860-1870.....	9
Figure 3.	Street Plan for Lock Haven and Lockport. (Compare to Figures 4-9 for Locations).....	20
Figure 4.	Distribution of the Residences of Unskilled Workers in Lock Haven and Lockport ca. 1870.....	22
Figure 5.	Distribution of the Residences of Semi-Skilled Workers in Lock Haven and Lockport ca. 1870.....	24
Figure 6.	Distribution of the Residences of Skilled Workers in Lock Haven and Lockport ca. 1870.....	26
Figure 7.	Distribution of the Residences of Shopkeepers and Clerical Workers in Lock Haven and Lockport ca. 1870.....	28
Figure 8.	Distribution of the Residences of Low White Collar Professionals in Lock Haven and Lockport ca. 1870.....	30
Figure 9.	Distribution of the Residences of Upper White Collar Professionals in Lock Haven and Lockport ca. 1870.....	32
Figure 10.	Distribution of Households in Lower Lockport ca. 1869-1870.....	39
Figure 11.	Distribution of Households in Upper Lockport ca. 1869-70. Note the Locations of Three Sawmills on the Opposite River Bank in Lock Haven.....	41
Figure 12.	General Locations of Five Farmsteads in Rural Woodward Township ca. 1860-1870. 1) N. Welsh Whitehouse 4) J. Hanna (McGill) 2) A. Smith 5) J. Hanna 3) S. Welsh.....	46
Figure 13.	General View of Lock Haven and Woodward Township. Note the Following Historically Sensitive Areas: A) Packer Farmstead D) Stern Farmstead B) Probst Farmstead E) Hanna Farmstead C) Spangler Prpoerty F) Lock Keeper's House...	48
Figure 14.	Illustration of the Isaac Packer and A. Smith Farmsteads in Woodward Township, ca. 1885.....	50

LIST OF TABLES

Table 1.	Place of Birth of Males 18+ Years Old ca. 1850.....	12
Table 2.	Place of Birth of Males 18+ Years Old ca. 1870.....	13
Table 3.	Occupational Status of Selected Ethnic Groups, Lock Haven Borough ca. 1870.....	14
Table 4.	Occupations Ranked by Average Value of Property Owned, Lock Haven Borough ca. 1870.....	16
Table 5.	Economic Hierarchy: Lock Haven Borough, Males 18+ ca. 1870.....	17
Table 6.	Economic Hierarchy: Lock Haven, Lockport, and Woodward Township, Males 18+ ca. 1870.....	17
Table 7.	Wealthiest Individuals, Lock Haven Borough, ca. 1870.....	19
Table 8.	Flemington Borough Workers, ca. 1874.....	37
Table 9.	Flemington Borough Workers, ca. 1895.....	37
Table 10.	Lockport Workers, ca. 1874.....	44
Table 11.	Lockport Workers, ca. 1895.....	44

LIST OF APPENDIX

Appendix A.	Occupational Classifications Applicable to the Lock Haven Study Area.....	63
-------------	--	----

PURPOSE OF HISTORICAL DOCUMENTATION STUDY

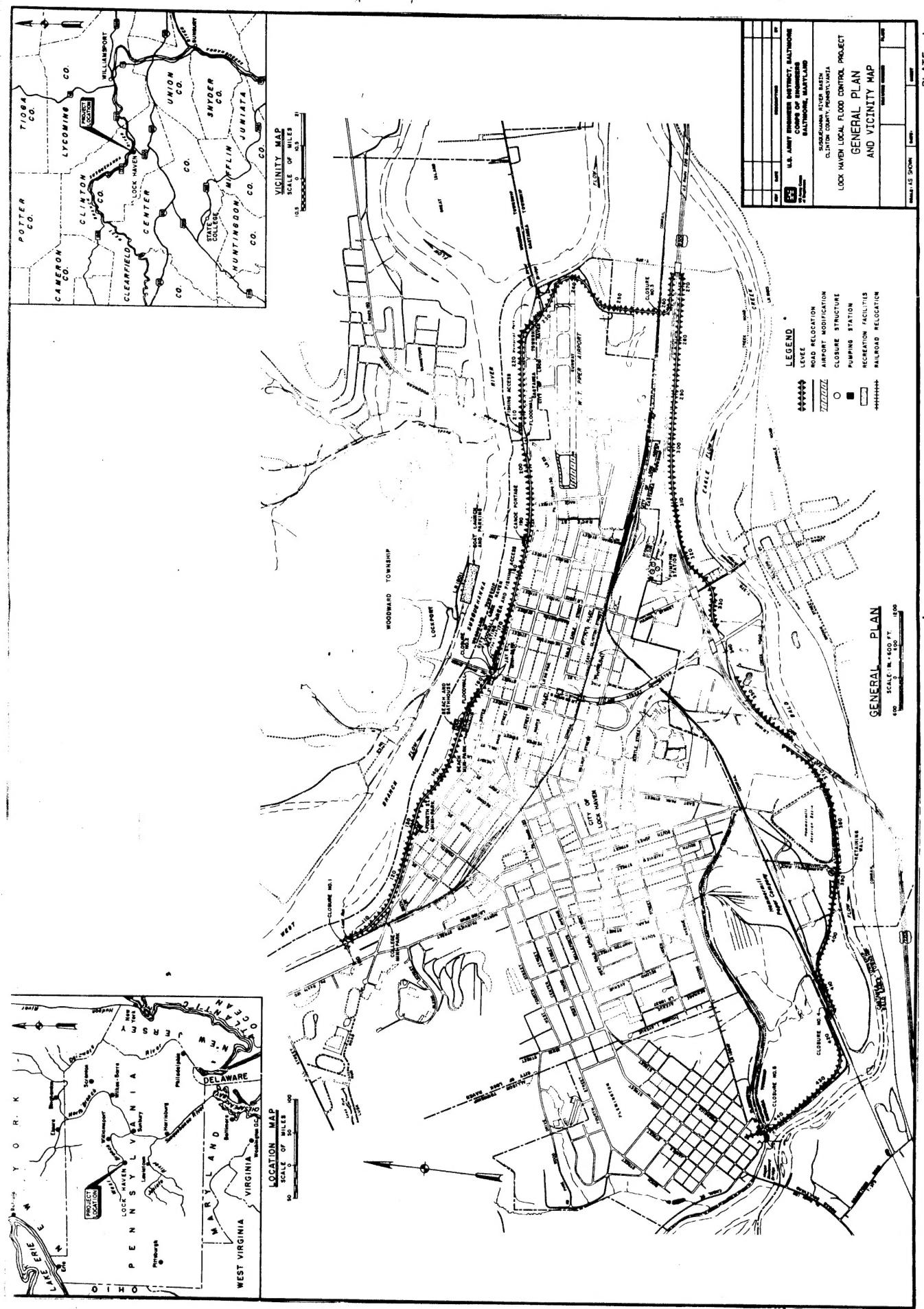
The purpose of this study is to define the focus and level of historical archaeological investigations that should be conducted in areas subject to adverse impacts from the proposed Lock Haven Flood Protection Project (Figure 1). It is designed to provide background information on historic patterns of settlement and socio-economic organization in Lock Haven and surrounding areas, and to define relevant historical research topics and questions on the basis of this information. The ultimate objective of the historical and archaeological research is to ensure that the Project does not adversely affect significant and National Register eligible sites, features, or artifactual materials which may contribute data necessary to the investigation of important historical research topics.

Phase I historically-oriented background studies and archaeological field investigations should attempt to identify those areas to be adversely affected by Project implementation which possibly contain intact and significant cultural resources that are most likely to generate information bearing on historic research questions or topics. Most actual data collection, however, would not occur until Phase II or III levels of investigation, should they be required. Until Phase I survey, testing, and background research are completed, it will not be known what, if any, potentially significant cultural resources are present, or the extent to which historical research questions can be addressed with data gathered from the Project area, or indeed, whether certain topics can be addressed at all.

Because much of the Project study area is situated on the active modern T-1 flood plain terraces of the West Branch of the Susquehanna River and Bald Eagle Creek, there exists a high potential for prior natural and man-made disturbance to some historic cultural resources. Fluvial aggradation and degradation most recently associated with three major floods (ca. 1889, 1936, and 1972) as well as with several minor floods may have severely altered, if not, entirely destroyed, removed, or redeposited certain historic period cultural resources (i.e., including artifacts, features, and structures). This appears especially true for portions of Lower and Upper Lockport where flooding was extensive and very destructive. Post-flood property clean-up and clearance as well as urban redevelopment resulted in the demolition, removal, in-filling, and/or grading of several properties or groups of properties which today fall within the proposed Flood Protection Project's induced flood mitigation zone or road relocation/recreation area.

Overall, the modern flood plain in the Lock Haven region along both sides of the Susquehanna River has represented the most suitable area for residential habitation and commercial development since Euro-American occupation first began in the late 18th century. Much of this flood plain, especially in areas immediately adjacent to the river banks, has been the scene of almost continuous development and alteration resultant from

Figure 1. General View of the Lock Haven Flood Protection Project.



building, demolishing, backfilling, rebuilding, and/or grading and landscaping activities. All of these are intricately associated with the urban growth and industrialization of Lock Haven and its surroundings hinterlands. These often repeated episodes have undoubtedly resulted in the destruction, removal, or mixing of a number of historic period cultural resources representative of different cultural/temporal proveniences.

Adverse effects to historical resources as a result of the urban growth of Lock Haven can be seen within the confines of the Project study area. Preliminary indications for the existence of considerable surficial and subsurface alteration from the earlier historic periods through the present decade are discussed in a previously prepared Disturbance Report (Vendel 1987a). Anticipated future Phase I historical survey and test excavations performed within the Lock Haven study area (i.e., the proposed levee/flood wall corridor and induced flooding mitigation zones) should facilitate more precise verification, documentation and delineation of the location, nature, and extent of previous disturbances.

Where appropriate, that is, in previously undisturbed or only minimally disturbed (i.e., some provenience data retained) portions of the Project study area, recommendations are offered for conducting Phase I historic archaeological investigations. In particular, specific areas, zones, or properties subject to adverse impact and which are most likely to contain archaeological evidence bearing on Lock Haven's historic patterns of development are identified. An archaeological research strategy that focuses on historical issues or topics of central importance to the growth and development of Lock Haven and its immediate surroundings will ensure that appropriate data will be recovered within the Project study area as a result of any future cultural resource management investigations. And, alternatively, that potentially significant cultural resources are not adversely affected as a result of the Lock Haven Flood Protection Project.

Historically oriented cultural resource investigations of the study area should focus primarily on documenting developments and changes which have occurred as a result of Lock Haven's 19th century urbanization and accompanying lumber industry growth (ca. 1840-1890). A closely related topic of importance pertains to the effects of evolving transportation systems on Lock Haven and surrounding communities. Production and consumption patterns of Lock Haven area residents were linked to local, regional, and national markets first by overland routes and the river, then by canals and railroads. Lock Haven proper came to occupy a strategic position with regard to a variety of commercial activities centered west of Williamsport, Pennsylvania. In particular, it was ideally situated for the exploitation of vast timber resources located along the West Branch of the Susquehanna River and its tributary rivers and streams.

From an historical perspective, the lumber industry was directly, as well as indirectly responsible for the course of the city's 19th and early 20th century development, profoundly influencing the processes of urbanization as well as the socio-economic character of the community, and in many ways, establishing prevailing patterns of settlement and land-use. Many of these patterns persisted even after the industry's decline following the Flood of 1889, well into the present century. Industries originally peripheral to the lumber industry, such as the Hammermill Paper Plant and its predecessors, later became central to the local economy.

HISTORICAL RESEARCH METHODOLOGY

This cultural resource management report was prepared as a result of background research and in-the-field inspection of the Lock Haven Flood Protection Project study area. A variety of potentially significant as well as previously determined significant structures, properties, and/or districts situated in Lock Haven, Castanea Township, Flemington Borough, Lockport, and Woodward Township were re-examined. Background research also attempted to identify any previously unexamined portions of the Lock Haven Flood Protection Project study area which may be historically sensitive (i.e., may contain potentially significant historical archaeological resources) and which may require Phase I field investigations. Pedestrian reconnaissance, preliminary documentary/archival searches, and informant interviews were conducted with local citizens and historical society members as well as with city and county officials over a 25 day period in December, 1986.

This study is based largely on data derived from the manuscript census schedules of the federal government and from several nineteenth century city directories of Lock Haven and the surrounding area. The census manuscripts provide a wealth of socio-economic and demographic information for historians, especially the schedules for the years 1850 and 1870, when a particularly useful format was employed. Although there are certain methodological problems with using census data, mainly because their accuracy and completeness were dependent upon the skill and conscientiousness of the individual enumerators, it is felt that the size of the present sample is large enough to minimize these problems. The city directories were useful sources for examining settlement patterns and for cross-checking the accuracy of certain census data.

Historic maps were also used extensively. The most important of these included maps by Walling (1862) and Richie and Stranahan (1869), as well as an extensive series of Sanborn insurance maps dating between 1885 and 1925. These were valuable in examining settlement patterns and industrial development in Lock Haven, Lockport, Flemington, and rural Woodward Township. The 1854 and 1872 views of Lock Haven reproduced in Wagner (1979:31 and 105) were useful supplements to these historic maps.

The Lock Haven Flood Protection Project has generated numerous cultural resource surveys during the past decade, and these contain a useful body of general historical information about the development of Lock Haven and the surrounding area. The reports by Deans (1979) and Deans and McMinn (1986), Israel (1979), and Dashiell et al. (1985) all were used in preparing portions of the present historical investigation. The architectural studies by Wagner (1979) and by the Clinton County Historic Sites Survey headed by Susan Hannegan also contained much useful information. Historical background research was further supplemented by extensive perusals of nineteenth century local published histories, especially those by Linn (1883), Maynard (1875), and Furey (1892).

The bulk of the documentary research was conducted at the Annie Hallenbake Ross Library in Lock Haven, where the city directories, historic maps, and local histories were examined. The Clinton County Historical Society at the Heisey Museum in Lock Haven also was contacted for historical information. Susan Hannegan of the Clinton County Planning Commision provided much of the Historic Sites Survey data. The manuscript census schedules are available on microfilm at the Ross Library, Penn State University's Pattee Library, and the Carneige Library of Pittsburgh. The city ordinances were examined at the Lock Haven Municipal Building, and City Engineer Richard Marcinkevage was interviewed to obtain information on when municipal water and sewage services were made available to various sections of the city and surrounding communities. Finally, the Planning Division, Baltimore District, Corps of Engineers, who are the sponsors of the present study as well as previous archaeological and historical resources studies, made available all of the previous cultural resource management reports that have been completed in connection with the Lock Haven Flood Protection Project.

HISTORICAL OVERVIEW OF THE LOCK HAVEN STUDY AREA

The earliest Euro-American settlement in the Lock Haven area occurred just prior to the American Revolution and was limited to a few scattered farmsteads, mainly in the vicinity of Great Island. These were given some measure of protection by "Fort Reed", a fortified cabin thought to have been situated just west of the Bald Eagle Cross-Cut Canal Lock near the present site of the Montour House (Linn 1883). Immigration to the Lock Haven area did not begin in earnest until after the end of the American Revolution, following the disruption of the "Great Runaway". After the threat of Indian attack had subsided, the productive soils along the West Branch and the abundant timber resources attracted many Scotch-Irish and Germans from eastern Pennsylvania, who settled on both sides of the West Branch in Allison and Woodward Townships (Linn 1883; Deans 1979). A village grew up at "Old Town", but this consisted of only a few log cabins and a tavern near Fort Reed, on the south side of present-day Water Street, east of the Jay Street Bridge. At that time, Water Street was the major road passing through the settlement (Maynard 1875; Furey 1892). The vast majority of new settlers were farmers, who exploited the rich alluvial bottomland soils. One of the few surviving structures located within the Flood Protection Project's study area and associated with this early period of Lock Haven's history is the J. Hanna Stone Farmhouse (built ca. 1813) in the Upper Lockport area of Woodward Township.

Old Town and its hinterlands grew slowly through the first three decades of the nineteenth century, with subsistence farming as the predominate way of life. Lumbering already was becoming important, but at this stage the timber was rafted down the river, past Old Town to downstream markets at Williamsport or beyond to Sunbury. Contacts with other areas were maintained by river or overland travel which brought new settlers and manufactured goods and permitted the export of agricultural surpluses and timber.

The construction of the West Branch and Bald Eagle Cross-Cut Canals in the early 1830's was probably the single most important event in Lock Haven's historical development. For the first time there was a reliable means of transporting timber to local markets, and the Dunnstown Dam built in 1833 created a slackwater pool where log rafts could be stored while the raftsmen patronized local stores, hotels, taverns, and other businesses that soon appeared to cater to their needs. The creation of the West Branch Canal also made it much easier for settlers and manufactured goods to be brought upriver from the east, while the Cross-Cut Canal running from Bald Eagle Creek north and east to the West Branch facilitated the procurement of goods and materials from areas located to the south and west of Lock Haven (Miller 1966 and Dashiell et al. 1985).

Beginning in the 1830's, Lock Haven and the surrounding settlements tended to develop somewhat differently from one

another. Therefore, the historical growth and development of these areas are best discussed and described separately.

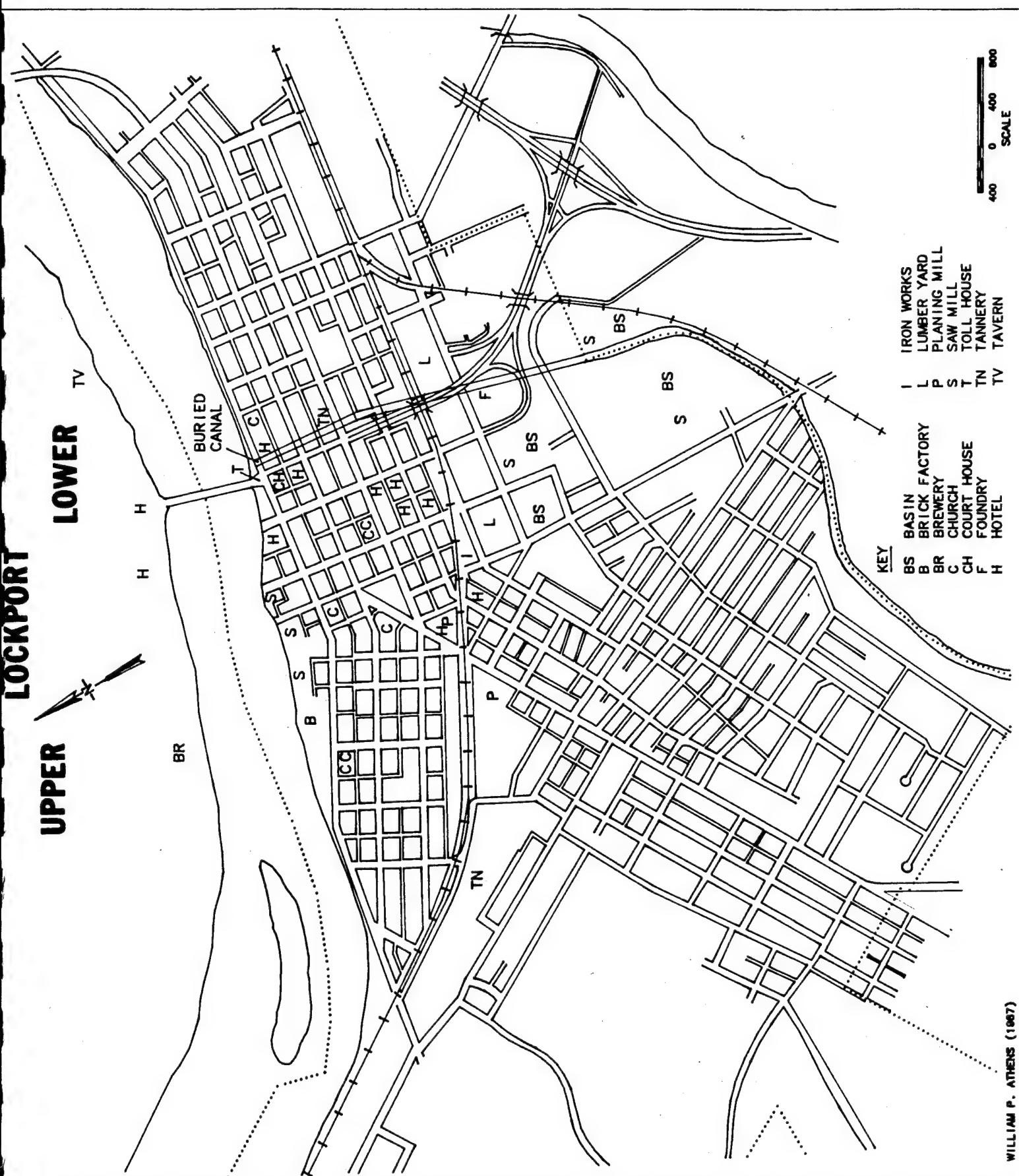
Lock Haven Borough

The town that was laid out on the site of Old Town by Jerry Church in 1833 and renamed Lock Haven basically encompassed the original first settlement area along with an adjacent tract situated to the south. The new town was centered around the Bald Eagle Cross-Cut Canal along the banks of the Dunnstown Dam's slackwater pool (Miller 1966). For nearly 30 years the Water Street area was the primary commercial district, as well as being the earliest residential section. Growth was rapid, especially after Lock Haven was named the county seat of Clinton County in 1844 (Linn 1883). Expansion occurred almost exclusively to the west and southwest of the original plat of Jerry Church's, while areas to the east and southeast continued to be used only as farmland (Walling Map 1862).

The completion of the West Branch Boom in 1849 was the second most important event in Lock Haven's developmental history. Although it signalled the beginning of the end for the rafting era on the West Branch, the Boom was directly responsible for the growth of the lumber processing industry in Lock Haven (Linn 1883; Miller 1966). Within only a few years, three steam-powered sawmills had been built along the southern bank of the West Branch near the Boom itself, while others were constructed at a slightly later date along the banks of the Bald Eagle Cross-Cut Canal (Linn 1883). A host of related industries eventually appeared, such as planing mills, furniture factories, and a sash and door factory. These industries employed hundreds of skilled workers and unskilled laborers, while creating the fortunes of Lock Haven's leading families. In addition, a large number of hotels and retail establishments appeared to serve and supply the basic needs of lumbermen, transient workers, and residents alike (Dashiell et al. 1985) (Figure 2). An influx of newcomers initiated a building boom that by necessity required the services of many carpenters, masons, and other members of the building trades. Many of Lock Haven's finest houses date to the 1850's (Wagner 1979). In short, the West Branch Boom, by making Lock Haven one of the foremost lumbering towns along the Susquehanna River, ushered in the town's "golden period", which lasted for approximately 40 years (ca. 1850-1890) and which featured a degree of growth, development, and prosperity unsurpassed before or since.

During this "golden period" expansion continued but was confined largely to the west and southwest, especially along Clinton Avenue (now Bellefonte Avenue) and to areas west of Mill Street. Major additions to the town were made successively in 1841, 1852, 1853, 1856, 1859, 1860, 1863, 1866, 1868, and 1869 (Linn 1883). It was in the Third Ward, especially on Water and West Main Streets, that most of the leading merchants and manufacturers built impressive new homes during the 1850's.

Figure 2. Distribution of Various Hotels, Churches, Govt. Offices, Businesses, and Industries in Lock Haven and Lockport ca. 1860-1870.



Two events apparently precipitated a shift in the town's commercial district away from its original Water Street/Grove Street nucleus southward toward Main Street and Clinton Avenue. The first was when the railroad reached Lock Haven in 1859, as the Philadelphia and Erie tracks were extended from Sunbury; five years later a western rail link was completed. Businesses began to relocate near the rail line on Clinton Avenue. The second event occurred in 1862, when almost the entire business district along Water and Grove Streets was leveled by the most disastrous fire in the town's history (Wagner 1979). This latter event probably served to complete the southward shift of commercial interests. After the mid-1860's new industries tended to be located in the southern portions of the city, near the railroad as well as near the basins constructed along both sides of the Cross-Cut Canal (Walling Map 1862; Richie and Stranahan Map 1869; and Sanborn Map 1885).

Lock Haven's population exploded during this period, increasing from only 830 in 1850 to 3,349 in 1860 and 6,986 in 1870 (Linn 1883). Most of the increase was due to immigration from other outside areas, as the annexation of Flemington Borough and the rest of Allison Township in 1870 had only a relatively minor effect. An abundance of data from archival sources and county and city records makes it possible to construct a socio-economic profile of Lock Haven about the year 1870. This represents a critical point in the evolution of Lock Haven just before the beginning of the lumber industry's decline of the late 1890's and early 1900's. The 1870 census manuscripts, the 1874-75 city directory, and a fairly detailed 1869 map provide a valuable overlapping corpus of data about the town's most prosperous and dynamic period.

Ethnically, the city's population was relatively homogeneous in 1870. Of all adult males listed in the census, 76.5% were native born whites, and about 90% of these persons had been born in Pennsylvania. These percentages are virtually identical to those for 1850, indicating considerable continuity over time (see Tables 1 and 2). The vast majority of native born whites not from Pennsylvania were from New York or Maine. Approximately 23.2% of all adult males were foreign born in 1870; this is up from approximately 17% in 1850. Of all the persons of foreign national birth in 1870, over half of these were Germans, with smaller numbers of Irish (ca. 32%), Canadians (ca. 5%), and English (ca. 4%). Previously in 1850, the only significant foreign born group had been the Germans. Between 1850 and 1870, the percentages of native blacks in the population of Lock Haven declined significantly, from approximately 5% to 1%. Blacks as an ethnic group appear never to have represented an important constituent within the city.

For several of these groups, preliminary data on ethnicity seems to correlate to a certain extent with occupation and economic status (see Table 3). Blacks apparently worked almost exclusively as domestics or unskilled laborers, while Irish were most likely to be employed as laborers. Germans and members of

		Lock Haven Borough		Allison Township		Woodward Township	
Native-Born Whites	Penna.	150		91		65	
	New York	7		2		5	
	Maine	0		0		8	
	New Hampshire	3		0		0	
	Vermont	2		0		0	
	Mass.	1		0		0	
	New Jersey	1		0		0	
	Delaware	1		1		1	
	Connecticut	0		0		1	
	Total	165	77.5%	94	90.4%	80	63.0%
Blacks		11	5.1%	1	1.0%	3	2.3%
Foreign-Born	Germany	30		3		26	
	Ireland	2		5		5	
	Scotland	0		0		6	
	England	4		1		2	
	Wales	0		0		1	
	Canada	1		0		0	
	Switzerland	0		0		4	
	Total	37	17.4%	9	8.7%	44	34.7%
TOTAL:		213	100.0%	104	100.0%	127	100.0%

Table 1 : Place of Birth of Males 18+ Years Old, 1850. Source: U.S. Census.

		Lock Haven Borough						Woodward Township
	First Ward	Second Ward	Third Ward	Fourth Ward	Fifth Ward	Total		
Native-Born Whites	Penna.	295	341	280	247	250	1413	182
	NY	10	30	21	23	4	88	8
	Maine	6	12	9	16	1	44	13
	Md.	6	5	1	1	1	14	0
	NJ	2	3	0	3	0	8	3
	Mass.	4	1	0	0	1	6	0
	Va.	0	2	1	1	2	6	0
	Conn.	0	2	2	1	0	5	1
	Ohio	0	4	1	0	0	5	0
	Mich.	1	0	0	1	0	2	0
	Other	1	0	2	0	0	3	1
Total		325	400	317	293	259	1594	208
		71.4%	71.2%	81.9%	74.2%	91.2%	76.5%	70.3%
Blacks		9	13	1	2	0	25	0
		2.0%	2.3%	0.3%	0.5%	---	1.2%	---
Foreign-Born	Germany	94	97	19	25	11	246	21
	Ireland	10	29	32	67	10	148	12
	Canada	0	11	9	2	1	23	7
	England	3	8	3	2	1	17	3
	Switz.	10	1	1	1	0	13	42
	Scotland	1	1	3	2	2	9	0
	France	3	0	1	0	0	4	2
	Wales	0	0	1	1	0	2	0
	Other	0	2	0	0	0	2	1
	Total	121	149	69	100	25	464	88
		26.6%	26.5%	17.8%	25.3%	8.8%	22.3%	29.7%
TOTAL:		455	562	387	395	284	2083	296
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2 : Place of Birth of Males 18+ Years Old, 1870. Source: U.S. Census.

Occupational Group	Native Whites	Blacks	Germans	Irish	English	Swiss	Canadians	
	#	%	#	%	#	%	#	%
Upper White-Collar	168	15.1	-	-	16	7.9	4	3.1
Lower White-Collar	162	14.5	-	-	45	22.3	5	3.9
Skilled	364	32.7	1	7.7	72	35.6	15	11.5
Semi-Skilled	94	8.4	4	30.8	15	7.4	6	4.6
Unskilled	292	26.2	8	61.5	54	26.7	96	73.9
Farmers	24	2.2	-	-	-	1	.8	-
Unclassified	10	.9	-	-	-	3	2.3	-
Subtotal	1114	100.0%	13	100.0%	202	100.0%	130	100.0%
No Occupation Listed	480		12		44		1	
TOTAL, MALES 18+	1594		25		246		148	
							17	100.0%
							1	6
							13	23

Table 3 : Occupational Status of Selected Ethnic Groups, Lock Haven Borough: 1870. Source: U.S. Census.

other groups were common at all but the highest occupational levels (which were completely dominated by native whites), but they tended to be concentrated in the skilled occupations and in the retail trade. Appendix A lists the specific occupations included within each general occupational category; the classification system used here generally follows that employed by Thernstrom, one of the pioneers in this sort of socio-economic analysis (Thernstrom 1973).

The various nationalities also tended to be clustered in different areas of the city, as well as in different occupational groups. In 1870, nearly 80% of all Germans lived in the First and Second Wards, while the Irish were concentrated in the Fourth Ward. Similar patterns can be observed for the minor ethnic groups as well, such as the English, Swiss, and Canadians.

Not surprisingly, the census records indicate that there was a direct correlation between occupation and economic level, but the contrast between the upper and lower extremes is the most dramatic. Table 4 lists Lock Haven's most important occupations, as indicated by the census records, together with the average value of property owned by the individuals engaged in each occupation. The highest economic or income level is represented by 37 lumber dealers and manufacturers, who averaged \$40,052 worth of real and personal property and by 40 merchants, who averaged \$21,249 worth of property. The lowest stratum consisted of 419 unskilled laborers and 10 saw filers, who had average property holdings of only \$639 and \$465, respectively. There was apparently a distinct hierarchy of occupational groups when ranked by the average value of their real and personal property. Thus, it appears that Lock Haven was a highly stratified society in 1870, with some of the most extreme examples of economic and occupational stratification occurring in the lumber and related industries. Although there were some exceptions, it appears that an individual's economic position generally can be estimated with considerable accuracy on the basis of his occupation.

Table 5 indicates that over half of all adult males, most of whom were employed in lumber-related jobs, were listed in the census as owning under \$100 worth of property, with many owning nothing at all. At the same time, a relatively small elite group of lumbermen, upper level professionals, and large-scale merchants controlled the bulk of the Lock Haven's wealth. There also was a fairly large group, composed mainly of smaller merchants, lower level professionals, and a few of the more prosperous skilled workers, who owned between \$1,000 and \$5,000 worth of property -- enough to be considered relatively affluent. Table 5 indicates that there were significant differences in the economic hierarchy among various wards in this city. For example, the Third Ward, which included most of the West Water Street and West Main Street areas, had by far the largest percentage of its workers in the upper economic levels, while the Fifth Ward, which included Flemington, was characterized by relatively few individuals in the very highest categories, and a high percentage in the \$500-5,000 range. There also were

Occupation	# of Individuals	Ave. Value Real Property	Ave. Value Personal Property	Ave. Value Total Property
Lumbermen*	37	\$ 24,978	\$ 15,074	\$ 40,052
Unspec. Merchants	40	9,378	11,871	21,249
Attorneys	18	7,867	4,188	12,054
Hotel Keepers	17	9,025	2,869	9,071
Grocers	14	3,414	4,414	7,829
Cabinet Makers	11	3,391	3,564	6,955
Butchers	12	3,417	1,240	4,656
Plasterers	13	3,100	469	3,569
Shoemakers	41	1,605	867	2,472
Tailors	19	1,826	526	2,353
Carpenters	102	1,270	468	1,738
Sawyers	21	1,462	228	1,690
Boatmen/Raftmen	25	632	694	1,326
Painters	17	912	409	1,321
Blacksmiths	27	791	506	1,296
Masons, Etc.	38	766	314	1,080
Tinners	10	670	255	925
Bookkeepers	10	700	140	840
Teamsters, Etc.	24	195	592	788
Clerks	37	541	231	772
Laborers	419	513	127	639
Saw Filers	10	250	215	465
Farmers	20	10,039	3,307	13,346

Table 4 : Occupations Ranked by Average Value of Property Owned, Lock Haven Borough, 1870. Source: U.S. Census

*The category of "lumberman" as used by the census enumerators included a variety of occupations. The individuals included as Lumbermen in this table were lumber dealers or lumber manufacturers, as determined from city directories.

Table 5 : ECONOMIC HIERARCHY: LOCK HAVEN BOROUGH, MALES 18+, 1870*

Real and Personal PROPERTY VALUE	LOCK HAVEN FIRST WARD		LOCK HAVEN SECOND WARD		LOCK HAVEN THIRD WARD		LOCK HAVEN FOURTH WARD		LOCK HAVEN FIFTH WARD	
	#	%	#	%	#	%	#	%	#	%
\$ 0- 100	222	49.7	332	60.5	193	52.2	192	48.6	134	47.2
101- 500	71	15.9	52	9.5	29	7.8	43	10.9	28	9.9
501-1000	30	6.7	28	5.1	17	4.6	27	6.8	27	9.5
1001-5000	92	20.6	61	11.1	52	14.1	92	23.3	77	27.1
5001-10,000	14	3.1	23	4.2	25	6.8	23	5.8	9	3.2
10,001-20,000	12	2.7	25	4.6	19	5.1	9	2.3	6	2.1
20,001+	6	1.3	28	5.1	35	9.5	9	2.3	3	1.1
	<u>447</u>		<u>349</u>		<u>370</u>		<u>395</u>		<u>284</u>	

Table 6 : ECONOMIC HIERARCHY: LOCK HAVEN, LOCKPORT, AND WOODWARD TOWNSHIP, MALES 18+, 1870*

Real and Personal PROPERTY VALUE	LOCK HAVEN ALL WARDS		LOCKPORT		WOODWARD TOWNSHIP	
	#	%	#	%	#	%
\$ 0- 100	1073	52.5	35	45.5	121	52.8
101- 500	223	10.9	12	15.6	36	15.7
501- 1000	129	6.3	10	13.0	19	8.3
1001- 5000	374	18.3	15	19.5	41	17.9
5001-10,000	94	4.6	2	2.6	7	3.1
10,001-20,000	71	3.5	2	2.6	2	.8
20,001+	81	4.0	<u>1</u>	<u>1.3</u>	<u>3</u>	<u>1.3</u>
	<u>2045</u>		<u>77</u>		<u>229</u>	

* Source: U.S. Census Data

significant differences among Lock Haven residents as a whole, and Lockport and the rest of Woodward Township along the opposite bank of the Susquehanna River with the latter two areas apparently less affluent from an occupational and wealth accumulation perspective (see Table 6).

The composition of Lock Haven's economic elite can be examined in Table 7, which lists the city's wealthiest individuals in 1870, according to the available census data. It is immediately obvious that most of these were lumbermen, including most of the owners of the local mills; other members of the elite were merchants and upper level professionals. Nearly all of these persons lived in or adjacent to the Third Ward of Lock Haven.

Interestingly, there were clear differences in the tendencies of various occupational groups to invest their economic resources in either real estate or personal property. These contrasting tendencies have important archaeological implications in that these differences should be reflected in building and construction styles as well as in the nature and types of material goods discarded.

It has been noted that there was a general tendency for residence clustering of ethnic groups, but there was an even greater degree of clustering by occupation and income level which often cross-cut nationality differences (Figures 3-9). The wealthiest families in Lock Haven, including lumbermen, bankers, the more prosperous merchants, and many professionals were living primarily in the Third Ward, especially along West Water and West Main Streets. Smaller retail merchants and clerks tended to cluster near the business district, with shopkeepers often living above or next to their stores. Skilled workers could be found in most areas, but were the most concentrated along the fringes of the business and industrial district. Unskilled manual laborers displayed a most interesting distribution in their residential patterns. Typically, they were encountered in a dispersed pattern almost exclusively along the town's periphery, especially to the east and south.

It appears that economic level was a much more important determinant of residence than was the place of work. For example, workers described as boatmen or log-drivers in the city directories were not clustered along the river as might be expected, but were concentrated in the First Ward at various distances from the River. Similarly, workers described as planing mill hands, stone cutters, tanners, and sawyers were not necessarily clustered near their respective industries. Instead, they lived in several different neighborhoods with other skilled workers of various occupations, often at some distance from their workplace. Apparently, in a small community such as Lock Haven, there were more important factors that determined a worker's place of residence than merely proximity to his place of work.

Name	Occupation	Real Property	Personal Property	Total Property
Mrs. A. Simons	Merchant	\$ 48,600	\$ 270,000	\$ 318,600
William Simpson	Lumberman	95,000	114,500	209,500
Philip Price	Gentleman	150,000	55,000	205,000
L.A. Mackey	Banker	60,000	97,000	157,000
Simon Scott	Merchant	141,000	10,000	151,000
R.R. Bridgens	Lumberman	55,000	95,000	150,000
Robert Cook	Lumberman	86,000	43,000	129,000
Mary Eldred	Keeping House	120,000	1,800	121,800
David Carskadden	Lumberman	100,000	18,000	118,000
Reuben Winslow	Lumberman	100,000	10,000	110,000
Proctor Myers	Farmer	70,000	40,000	110,000
Warren Martin	Lumberman	44,500	60,000	104,500
Abraham Best	Lumberman	52,500	52,000	104,500
Shaffer Johnson	Lumberman	69,000	11,000	80,000
Samuel Fredericks	Lumberman	56,000	20,400	76,400
Phaon Jarrett	Civil Engineer	50,000	25,000	75,000
J. McWilliams	Agriculturalist	75,000	--	75,000
Edward Worth	Lumberman	52,000	20,000	72,000
O.D. Satterlee	Lumberman	65,000	1,000	66,000
William White	Hotel Keeper	50,000	10,000	60,000
E.A. Handee	Builder	60,000	--	60,000
J.G. Brown	Gentleman	50,000	10,000	60,000
Samuel Christ	Lumberman	35,000	20,000	55,000
J.F. Sloan	Cabinetmaker	25,000	27,000	52,000
H.A. Vandyke	Contractor	50,000	1,000	51,000
A.C. McKinney	Lumberman	40,000	10,000	50,000

Table 7 : Wealthiest Individuals, Lock Haven Borough, 1870.
 Source: U.S. Census

Figure 3. Street Plan for Lock Haven and Lockport.
(Compare with Figures 4-9 for Locations).

**City of
Lock Haven, Pa.**

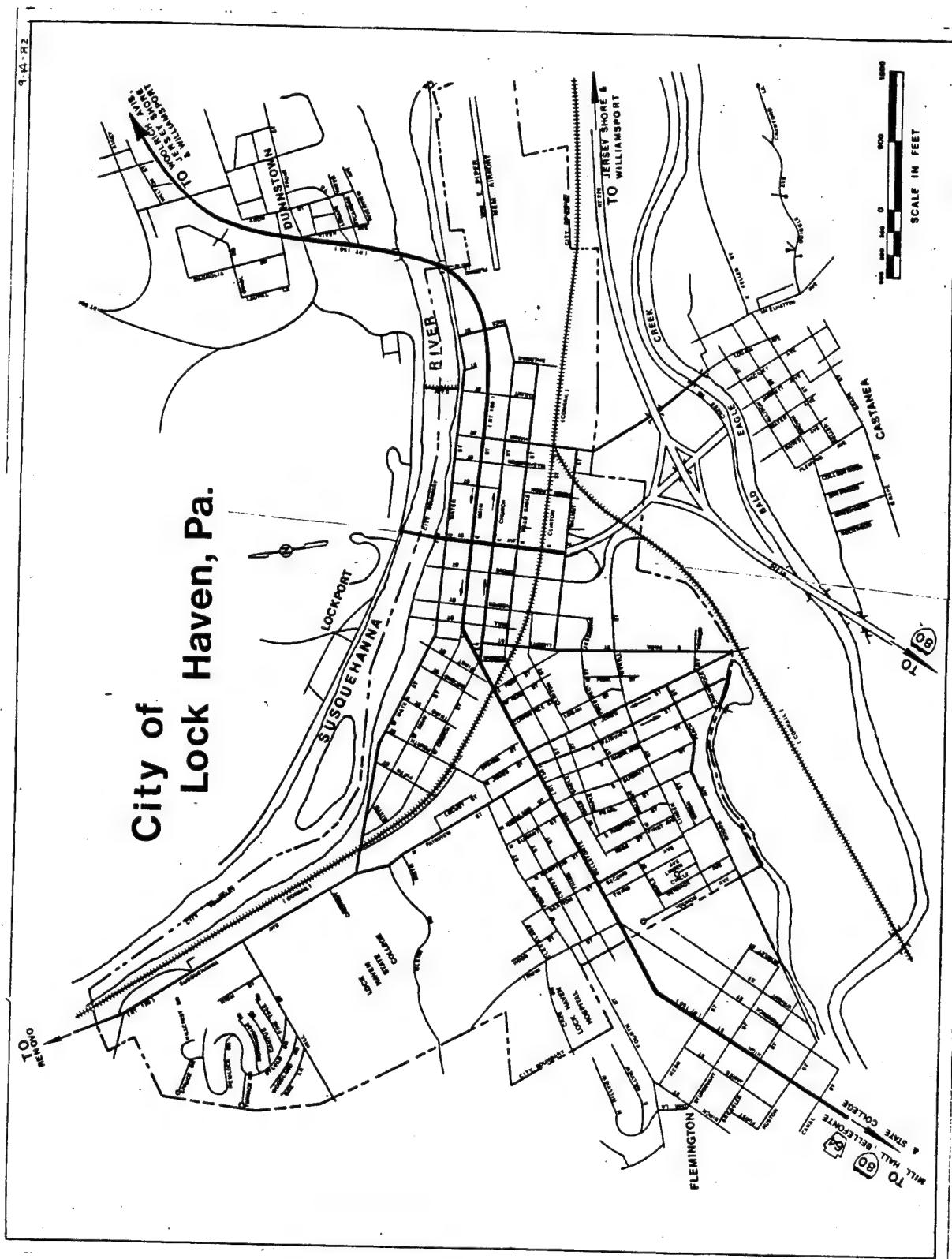
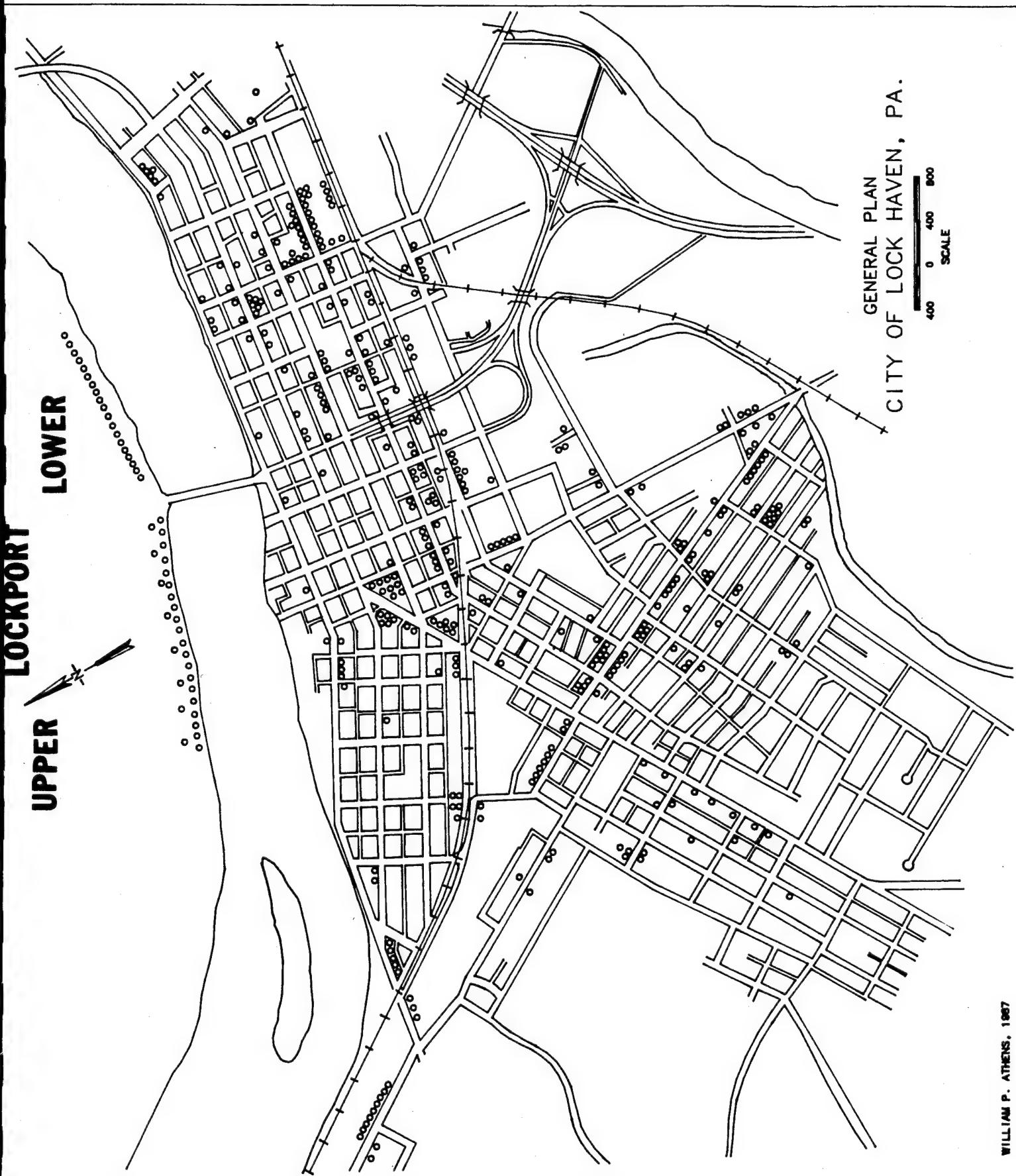


Figure 4. Distribution of the Residences of Unskilled Workers in Lock Haven and Lockport ca. 1870.

LOCKPORT
UPPER
LOWER



WILLIAM P. ATHENS, 1987

Figure 5. Distribution of the Residences of Semi-Skilled Workers in Lock Haven and Lockport ca. 1870.

LOCKPORT
UPPER
LOWER

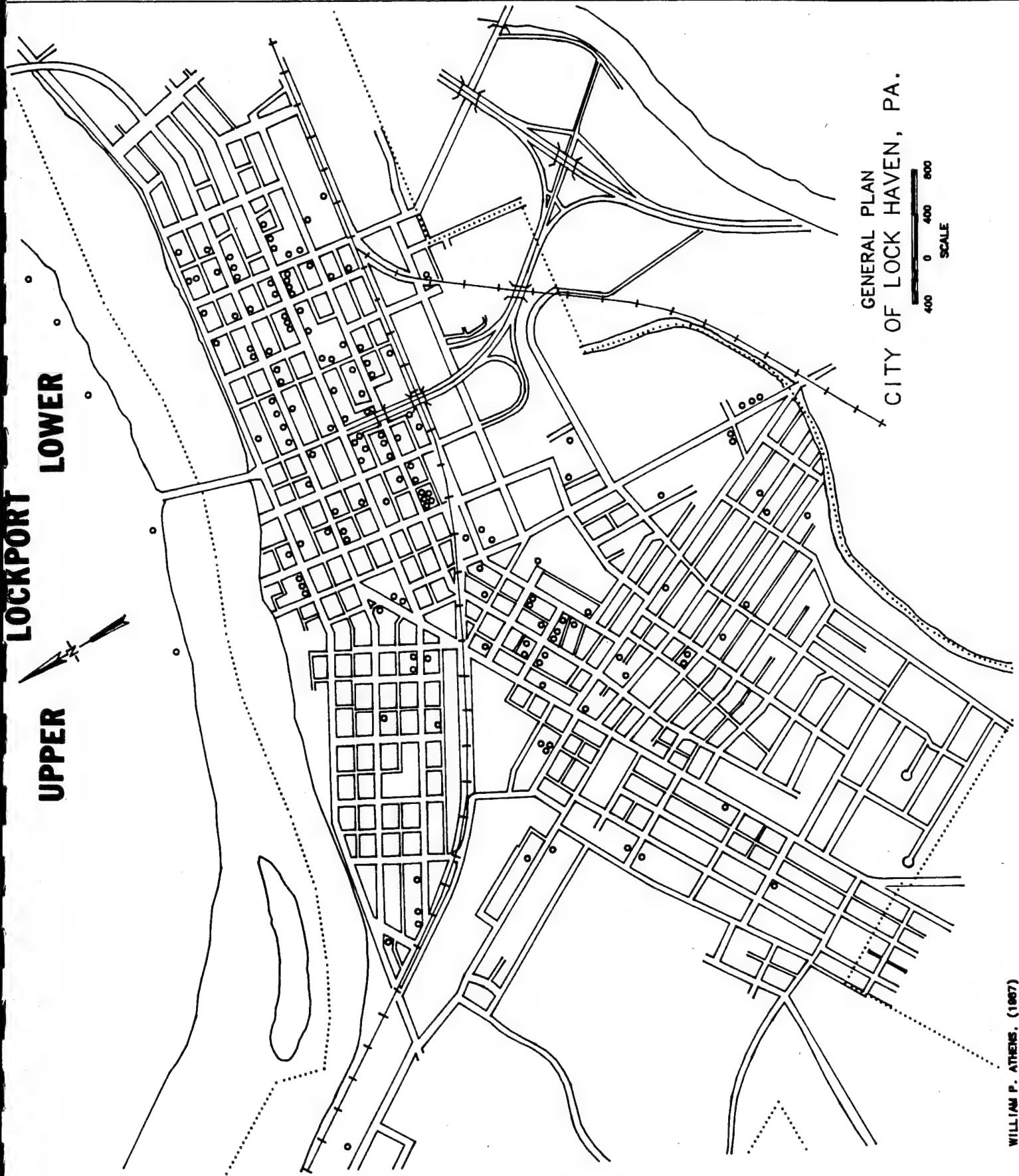


Figure 6. Distribution of the Residences of Skilled Workers
in Lock Haven and Lockport ca. 1870.

LOCKPORT
UPPER
LOWER

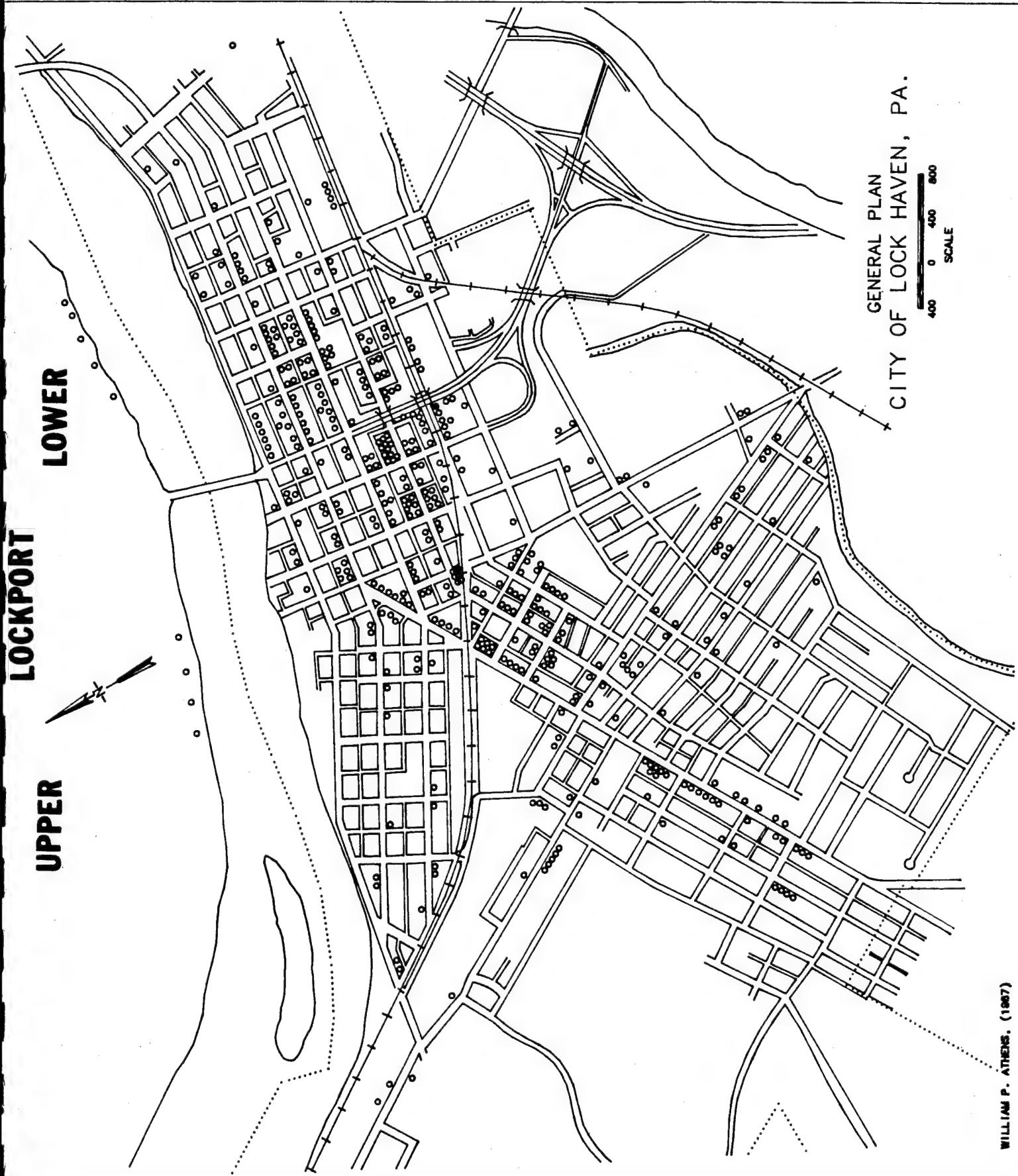


Figure 7. Distribution of the Residences of Shopkeepers and Clerical Workers in Lock Haven and Lockport ca. 1870.

LOCKPORT

LOWER

UPPER

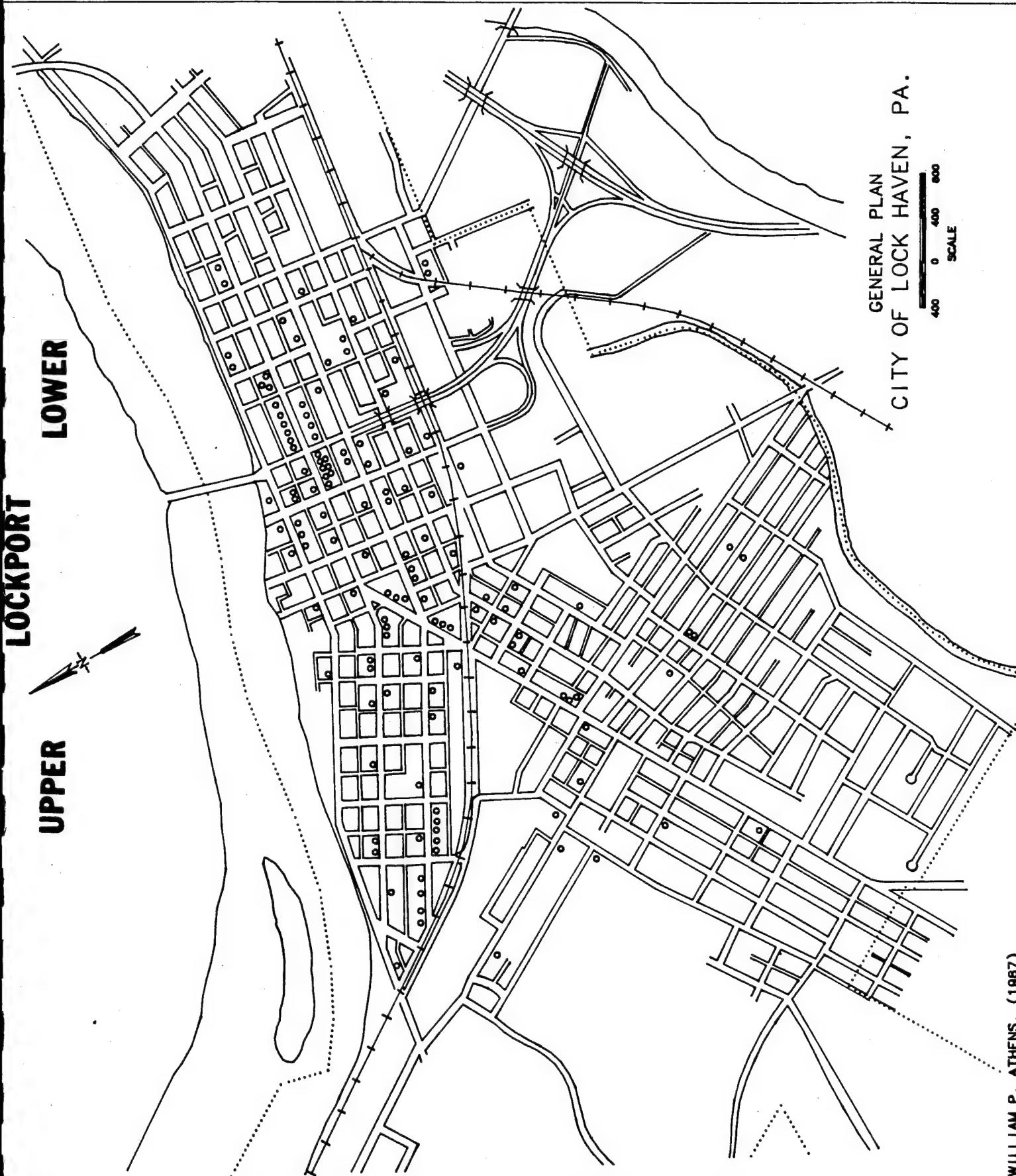
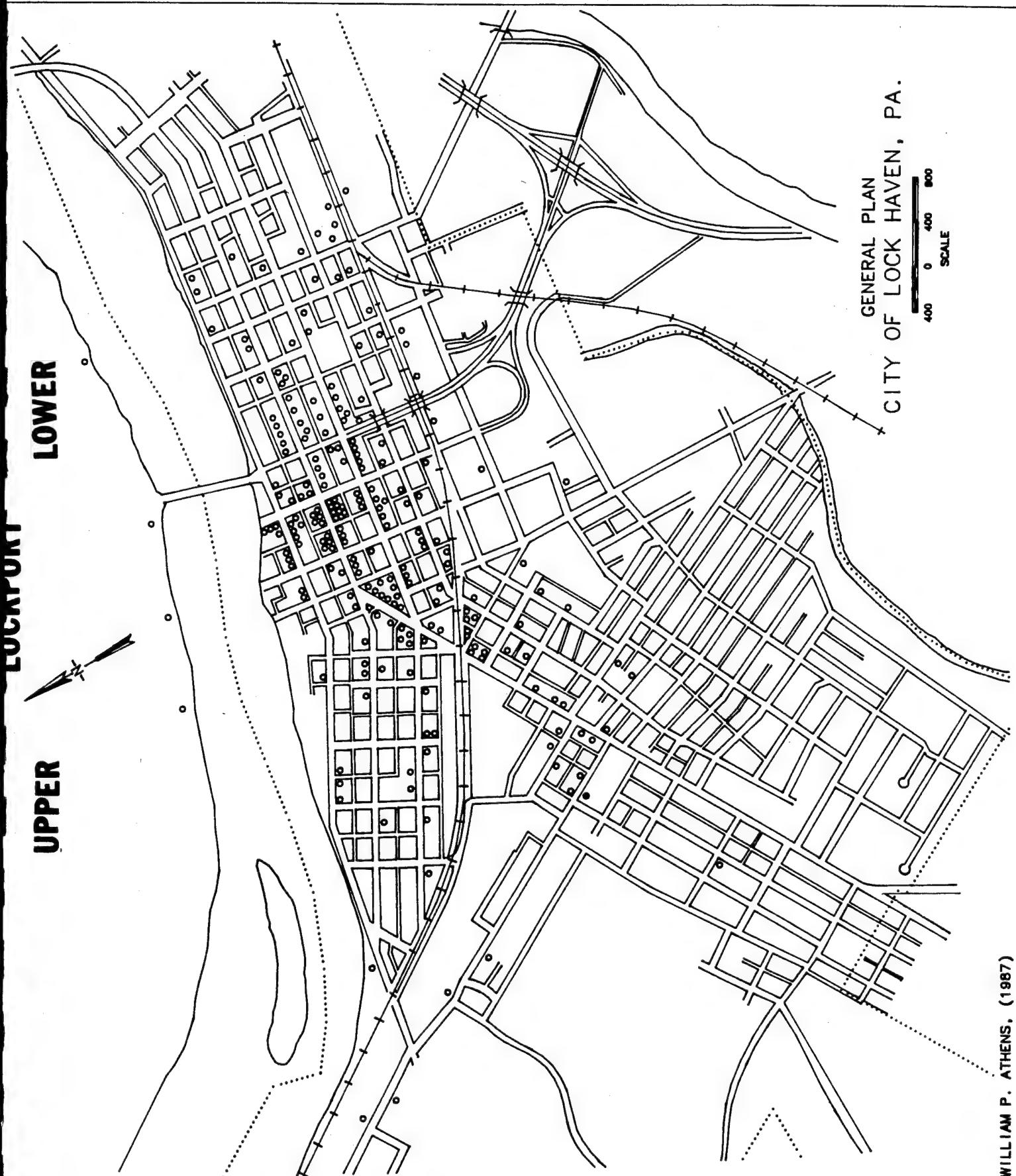


Figure 8. Distribution of the Residences of Low White Collar Professionals in Lock Haven and Lockport ca. 1870.

LOCKPORT
UPPER
LOWER



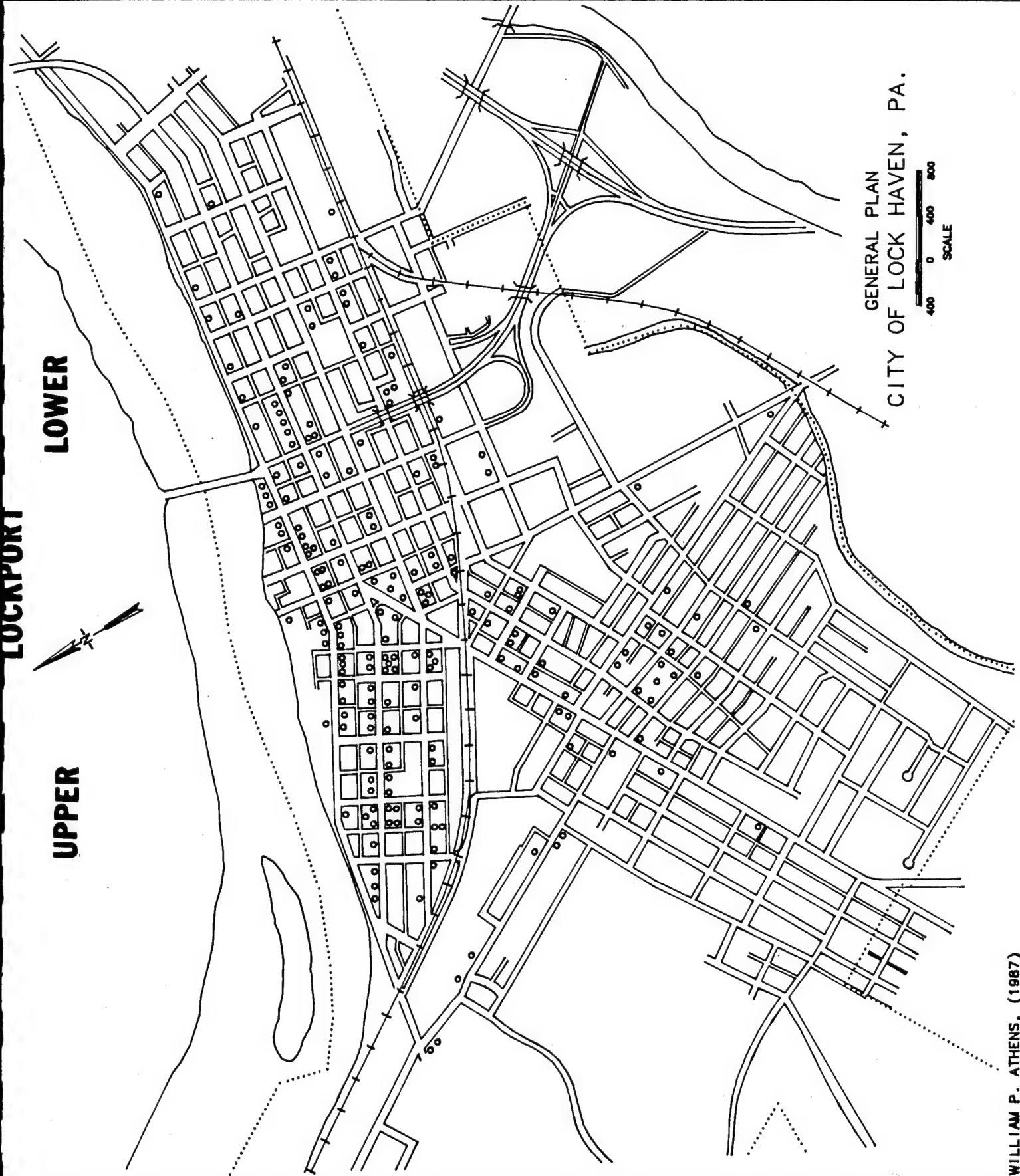
WILLIAM P. ATHENS. (1987)

Figure 9. Distribution of the Residences of Upper White Collar Professionals in Lock Haven and Lockport ca. 1870.

LOCKPORT

LOWER

UPPER



WILLIAM P. ATHENS, (1987)

Many times families were boarders, often living in a relative's household. It was not uncommon for many workers with similar occupations to all lodge in a single household. Lock Haven's many hotels were also filled with boarders from a variety of social levels or occupations, though much of their business seems to have come from clerks and transient skilled workers. Occasionally, there were families boarding in the hotels, but the vast majority of the hotel clientele was composed of young single males.

The lumber industry created the fortunes of Lock Haven's leading families at the same time that it provided work for hundreds of skilled, semiskilled, and unskilled workers, many of whom lived at a bare subsistence level. Hundreds of other individuals were indirectly dependent on the lumber industry, working in retail trades, construction, or other activities extremely sensitive to fluctuations in the economic "health" of the Lock Haven lumber industry. The lumbermen, along with other manufacturers, professionals, and large merchants dominated Lock Haven economically, socially, and politically for most of the nineteenth century, while the bulk of the population was divided between a substantial floating class of propertyless workers and another substantial group who managed to acquire sufficient property and/or social status to rank one or more steps above them. It appears that there was a strong correlation between occupation and economic level, and between economic level and place of residence. It often would be possible to predict an individual's economic status on the basis of his ethnic background, occupation, or place of residence. Thus nineteenth century Lock Haven can be viewed as an economically stratified, and socially well-defined society.

The patterns established during Lock Haven's most prosperous period persisted long after the flood of 1889 dealt the final blow to the already collapsing and dying lumber industry. The industry had been ailing economically for some time because of clear cut lumbering practices which hastened the depletion of the timber resources along the West Branch, and because of periodic disastrous floods which together helped to create a series of deepening business and industrial recessions (Miller 1966; Deans 1979). Most of the local mills already had been closed when the 1889 flood destroyed the canal system and made large-scale lumbering at former peak levels (ca. 1849-1889) impractical (Dashiell et al. 1985).

Following the demise of the lumber industry, several of the other industries established in Lock Haven only after 1850 continued to prosper and develop. The local economy became more diversified, as the existing ironworks, planing mills, furniture factories, and tanneries were joined by new enterprises, which were eventually to become the area's most important employers in the twentieth century. These included the Queen's Run Fire Brick Company, the Lock Haven Silk Mill, and the Pennsylvania Pulp and Paper Company. Although the "golden era" had passed, there continued to be an abundance of opportunities for skilled,

semiskilled, and unskilled workers. Lock Haven's diversified and newly prosperous industries provided a reasonably stable economy for much of the twentieth century, especially after the arrival of Piper Aircraft Corporation in 1937 (Dashiell et al. 1985).

The city's geographical expansion in the twentieth century has continued to be toward the southwest; and to a surprising extent, the residential areas of today are much the same as they were in 1870, although industrial development has filled in much of the formerly open area between the center of the city and Bald Eagle Creek to the south.

Lock Haven Airport Extension and Clearance Zones

Very little relevant historical information currently exists in the form of textual or documentary sources for this area. This apparently indicates that its utilization or occupation was relatively minimal or sparse before the twentieth century when compared with other portions of Lock Haven situated to the west. For much of the nineteenth century, this area probably was cultivated, if it was in use at all. For the better part of the early and mid-nineteenth century, this tract of land was located just outside of the Lock Haven Borough limits and there appears to be no good evidence of any residential activity prior to about 1870 (Greevy and Renner 1874). An examination of an 1862 map of Clinton County indicates that there was a large fairgrounds situated in the general vicinity of this tract of land (Walling Map 1862).

Even at a slightly later point in time, the 1874-75 city directory suggests that settlement was still quite sparse to the east of Hanna Street. This settlement consisted only of a few scattered houses, situated primarily along East Bald Eagle Street. By 1895, however, there were additional settlements along East Bald Eagle Street, and a few houses in the 800 blocks of East Main and East Church Streets (Thornton and Xander 1895; and Sanborn Map 1896). In both 1875 and 1895, these neighborhoods were occupied predominately by laborers, teamsters, and other individuals with relatively low-ranking occupations. Ranking here was measured primarily on the basis of economic (i.e., property value and income) and social status. Deans (1986) notes that this area was part of Proctor Myers' second addition to the city, having been added to Lock Haven around the turn of the nineteenth century.

Limited residential or commercial development of the airport study area continued through the early twentieth century, while the heaviest development did not occur until the period immediately preceding World War II and following the relocation of Piper Aircraft in Lock Haven after 1937 (Deans and McMinn 1986). From the current available evidence, it appears likely that the houses presently standing within the study area were in all probability the very first structures to be built on their respective lots.

Flemington Borough

Although scattered settlement occurred in the Flemington area as early as the eighteenth century, as a village Flemington did not exist until the 1830's. It grew and developed around the terminus of the Bald Eagle Cross-Cut Canal, which was completed in 1834. Flemington originally served as an agricultural center where goods were transferred to canal boats after being transported overland by wagon or by boat along Bald Eagle Creek. After the completion of the Bald Eagle and Spring Creek Canals to Howard Furnace in 1837 and to Bellefonte in 1847, the Cross-Cut Canal became a key transportation link between more southerly and westerly areas of Clinton County and the West Branch Canal, making Flemington's location even more strategic from a trading and industrial manufacturing perspective (Clinton County Historic Sites Survey 1984).

Nevertheless, Flemington grew only very slowly and consisted of only six houses and a few stores in 1848 (Africa 1883). Most of its growth in population and commerce occurred in the late nineteenth and early twentieth centuries. Flemington's location was attractive for industrial development because of its ready access to a couple of significant transportation systems. The building of canal boats was the first important industry, followed by the establishment of a foundry in 1858 and a sawmill and grist mill by 1862. By approximately 1883, Flemington contained four sawmills and one flour mill, and supported numerous carpenters, blacksmiths, and shoemakers to name only a few of the available trade and retail occupations (Linn 1883).

Ethnically, Flemington was extremely homogeneous, with about 90% of its 1870 population being native Pennsylvanians. It contained no blacks in 1870, and only a handful of Germans and Irish (see Table 2). It generally lacked the kind of economic elite or upper class that so dominated Lock Haven, and the vast majority of its residents were skilled or unskilled manual workers. Table 5 shows that a significantly larger percentage of Flemington's workers fell into the middle ranges of the regional economic hierarchy than was the case in Lock Haven, Lockport, or Woodward Township, generally (U.S. Census 1870; Greevy and Renner 1874; and Thornton and Xander 1895). Tables 8 and 9 list the workers who were living in Flemington in 1874 and 1895. Among other things, it can be noted that the two lists reflect the decline of the lumber industry in the 20 year interum.

The nineteenth century residential settlement of Flemington was clustered predominately along Canal and High Streets in the vicinity of the Cross-Cut Canal. Industrial development also occurred along the canal as well as on Huston Street (Richie and Stranahan Map 1869; Greevy and Renner 1874). After the canal was abandoned, the result of the flood of 1889, Flemington eventually became a residential and partly commercial and industrial suburb of the city of Lock Haven. Flemington residents found it easy to commute to work in Lock Haven, particularly after trolley service linked the two areas in 1894 (Deans and McMinn 1986). Flemington

Table 8 : Flemington Workers, c. 1874 (Greevy & Renner 1874).

Manufacturer: 4	Carpenter: 24
Hotel Keeper: 1	Blacksmith: 3
Gentleman: 4	Boat Builder: 2
Minister: 1	Wagon-Maker: 1
Physician: 1	Coachmaker: 1
Teacher: 1	Plasterer: 2
Druggist: 3	Painter: 1
Agent: 2	Cooper: 1
Clerk: 4	Millwright: 2
Bookkeeper: 3	Moulder: 2
Grocer: 5	Machinist: 1
Misc. Merchants: 5	Miller: 2
Huckster: 2	Baker: 2
Constable: 1	Butcher: 2
Ward Supervisor: 1	Sawyer: 4
Justice of the Peace: 1	Saw Filer: 3
Farmer: 3	Log-Driver: 2
Dairy: 3	Lumber Sealer: 1
Tailor: 3	Lumberman: 2
Seamstress: 5	Raftsman/Boatman: 3
Shoemaker: 5	Pilot: 1
Hair Weaver: 1	Teamster: 3
Tanner: 1	Pressman: 1
Cook: 1	Fireman: 2
Domestic: 11	Shingle Mill: 1
Apprentice: 2	Laborer: 65

Table 9 : Flemington Workers, 1895 (Thornton & Xander 1895).

Contractor: 1	Carpenter: 19
Hotel Owner: 1	Blacksmith: 5
Minister: 1	Chair Maker: 1
Physician: 1	Wheelwright: 2
Student: 3	Millwright: 3
Druggist: 1	Plasterer: 1
Agent: 3	Painter: 3
Clerk: 4	Moulder: 1
Bookkeeper: 3	Machinist: 1
Merchant: 8	Miller: 5
Huckster/Salesman: 5	Baker: 1
Postmaster: 1	Butcher: 5
Constable: 1	Axe Maker: 1
Musician: 1	Broom-Maker: 1
Farmer: 2	Printer: 1
Engineer: 3	Saddler: 1
Lumberman: 1	Tanner: 5
Tinner: 1	Car Inspector: 2
Cigar Maker: 3	RR Fireman: 2
Saw Filer: 3	Teamster: 3
Cook: 1	Lime Burner: 1
Barber: 2	Laborer: 83
Seamstress: 4	
Domestic: 5	

retains this suburban and generally subordinate character even today.

Lockport

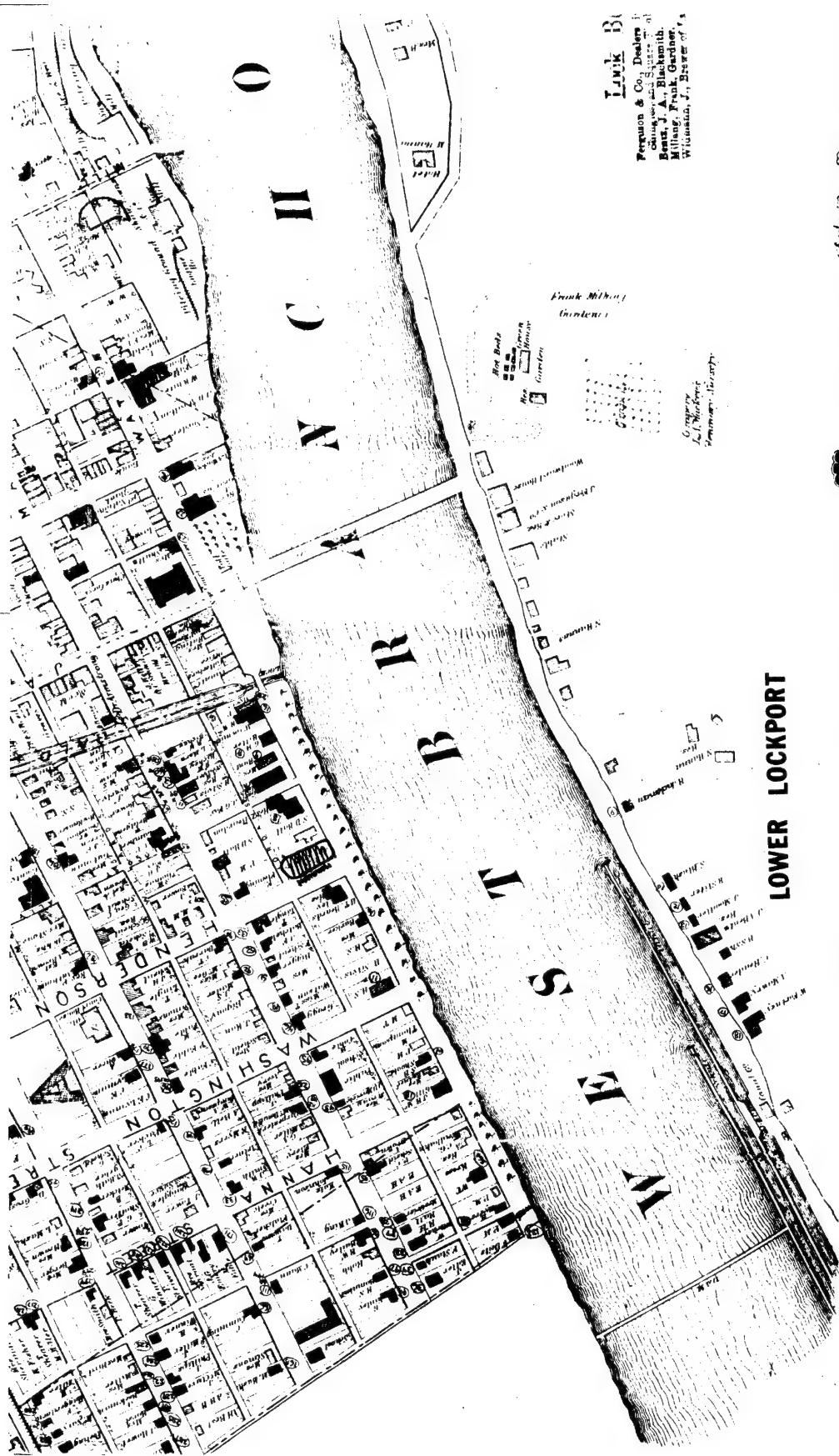
Like Lock Haven and Flemington Borough, Lockport's initial and early growth was due to the development of lumbering and the construction of the canal system along this portion of the West Branch of the Susquehanna River. The nearby town of Dunnensburg (now Dunnstown) was laid out in 1792, and an alcohol still had operated at Reeds Run at about 1800. However, the initial development of Lockport did not actually begin until the West Branch Canal was completed in 1833. The site of the town of Lockport was part of the Nathaniel Hanna farm. Hanna, it would appear had anticipated its commercial potential when he built the Hanna Hotel in 1834. Another hotel, the Woodward House, opened shortly thereafter in 1847. Both of these facilities served to accommodate the transient workers, laborers, raftsmen, and lumbermen who frequently worked and/or passed through this portion of the West Branch (Linn 1883).

A settlement soon grew up around the two hotels and around the canal lock situated at the far eastern end of Lockport. The "Western Addition", or Upper Lockport, was laid out in 1855. Around this same time, a new Hanna Hotel was constructed in Upper Lockport in 1860 to replace its predecessor in Lower Lockport, which had been destroyed by fire in 1858. By the 1870's (see Figures 10-11), both segments of Lockport contained 49 houses, two hotels, one store, two blacksmith shops, and approximately 275 residents (Linn 1883; Furey 1892).

Lockport's prosperity was apparently tied to the lumber industry of the West Branch to an even greater degree than was that of Lock Haven. Lockport was the head of market for the square timber trade on the West Branch, and the buying and selling of lumber was its principal business (Greevy and Renner 1874). Every raft which floated down the West Branch had first to pass through the chute in the dam at Lockport. Even after the completion of the West Branch Boom in 1849, rafting remained central to the economy of Lockport. It was estimated that the Hanna Hotel in Upper Lockport once hosted 1400 lumbermen/raftsmen in a single day, and approximately 20,000 in one rafting season; while the Woodward House entertained between 12,000 and 25,000 persons in a single season. The majority of these boarders were members of lumber-related trades. When as many as 2800 rafts made the trip down river in one season, the lumber industry meant prosperity to Lockport (Linn 1883).

Although, the census records and other documentary sources indicate that relatively little of this economic prosperity filtered down to the majority of Lockport residents, it appears that most occupants of Lockport were able to afford their own modest homes, and maintain a relatively low frequency of boarders. In a few instances of boarding, these residents

Figure 10. Distribution of Households in Lower Lockport ca.
1860-1870.



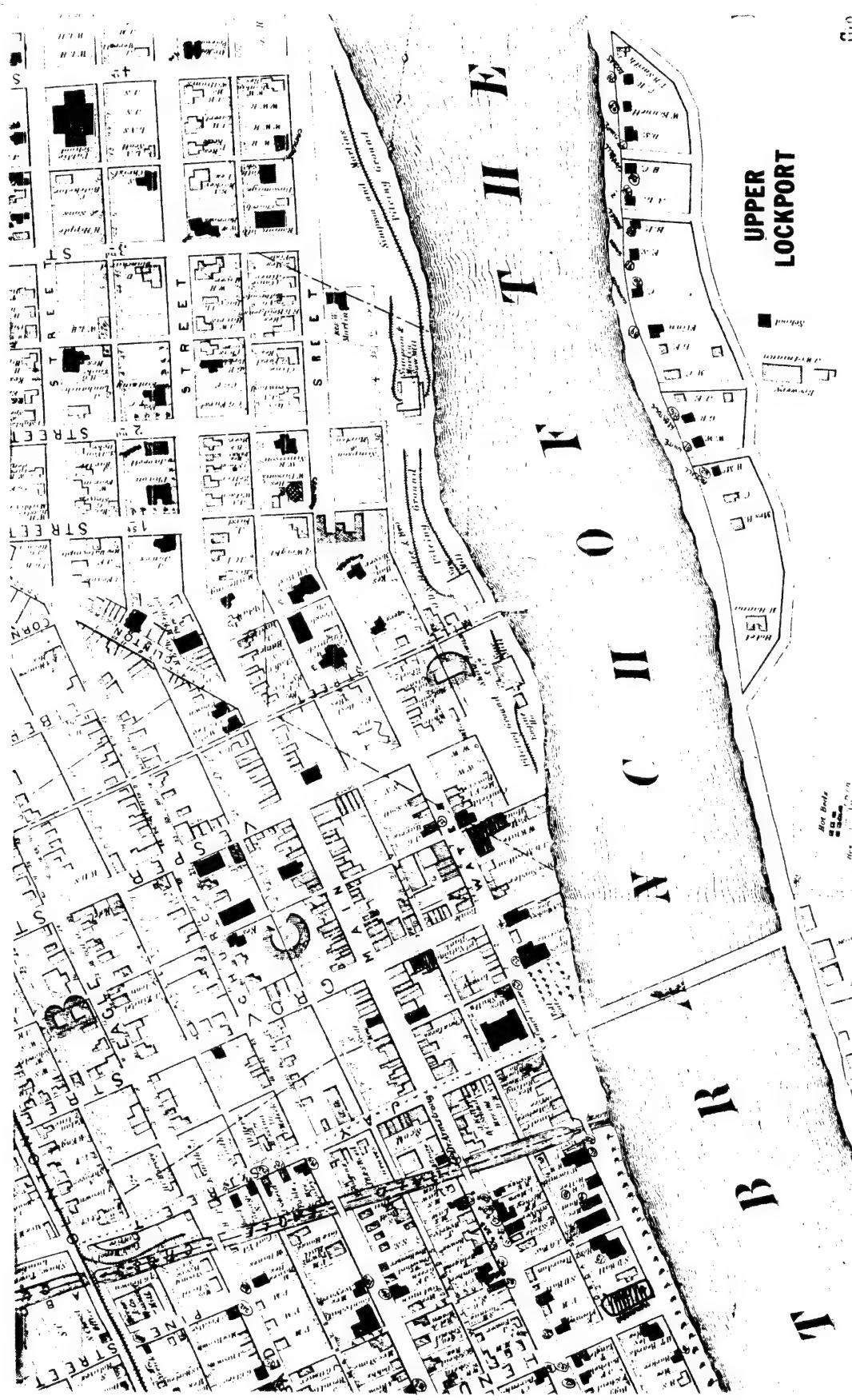
Linnik **B** (Persson & Co., Dealers in
chocolates and Sweets, etc.
Benn, J. A. Blacksmith,
Milan, Frank Gardner,
Milan, J. J. Brewer of Wis.
Wisconsin.

Perrin & Co., Dealers in
Guitars, Violins, & Square
Dance Instruments.
Benz, J. A., Blacksmith.
Millang, Frank, Gardner.

LOWER LOCKPORT

40

Figure 11. Distribution of Households in Upper Lockport
ca. 1869-1870. Note the Locations of Three
Sawmills on the Opposite River Bank in Lock
Haven.



apparently lived in a relative's home. But while a few residents, such as the merchants, John Ferguson and Lewis Hoover, farmer Joseph Hanna, and Jacob Widmann, brewery owner, were quite successful economically, the vast majority of Lockport's occupants apparently lived at only a subsistence level. Most residents worked as laborers, although a few skilled workers and a blacksmith also lived in Lower Lockport (U.S. Census 1870; Greevy and Renner 1874). These residential/occupational patterns seem to have persisted throughout the nineteenth century. Tables 10 and 11 list the workers indicated as living in Lockport by the time when the 1874 and 1895 directories were prepared.

Lockport was accessible from Lock Haven only by boat or ferry transport, until the first of several Jay Street Bridges was built in 1852 (Lock Haven Sesquicentennial Inc. 1983). From this time onward, it is probable that many Lockport residents worked in the city of Lock Haven, as job opportunities in Lockport must have been more limited in the face of a slightly growing population, and fewer commercial or industrial stores or plants.

By approximately 1892, Lockport contained about 65 houses and some 300 plus inhabitants, with one store, one blacksmith shop, and one brewery also present. It was reported that the "June flood of 1889 did considerable damage to the town of Lockport", and this must have had economic as well as physical ramifications, since the flood destroyed the canal as well as the last remnants of the lumber industry (Furey 1892). After this time, the only work directly in the town would have been at the Widmann Brewery in Upper Lockport. The brewery was built and opened in 1860 (Linn 1883) and continued to be a viable industry throughout much of the twentieth century. Following the 1889 flood, Lockport was relegated to the status of a Lock Haven suburb, completely dependent on the larger city for nearly all of its necessary mercantile, industrial, and professional goods and services.

Monseytown/Water Valley Area

Development and settlement of the river flats west of Lockport have been relatively recent phenomena, occurring principally after World War II and, in particular, within the past 15 years. The tendency for this area to severely flood at regular intervals evidently has discouraged its utilization for purposes other than that of farmland. However, some of the earliest settlements or farmsteads in the Lock Haven/Lockport vicinity occurred on these fertile flood plains.

The rich bottom lands of the Monseytown Flats attracted settlers in the late eighteenth and early nineteenth centuries, all of whom established farms. Throughout the nineteenth century, there persisted a pattern of only a few scattered farmsteads across the entire area (Deans and McMinn 1986). An 1862 map displays five farmsteads (houses with a few

Table 10 : Lockport Workers, c. 1874 (Greevy & Renner 1874).

Merchant: 1	Carpenter: 2
Confectionary: 1	Blacksmith: 1
Hotel Keeper: 2	Shoemaker: 1
Lumber Inspector: 2	Brewer: 1
Log-Catcher: 1	Engineer: 1
Log-Floater: 2	Boatman: 3
Lumberman: 5	Domestic: 3
Clerk: 1	Teamster: 1
Farmer: 4	Gardener: 2
Seamstress: 2	Laborer: 36

Table 11 : Lockport Workers, 1895 (Thornton & Xander 1895).

Merchant: 1	Carpenter: 3
Saw Mill Supt.: 1	Blacksmith: 3
Canal Supt.: 1	Shoemaker: 1
Brickworks Sec. & Treas.: 1	Brewer: 4
Timber Inspector: 1	Engineer: 1
Log Scaler: 2	River Pilot: 1
Clerk: 4	Mail Carrier: 1
Farmer: 1	Gardener: 1
Seamstress/Tailoress: 3	Laborer: 49
Tanner: 1	
Bar Clerk: 4	

accompanying outbuildings), all situated adjacent to the river (Figure 12); there were as yet no structures or roads depicted where the Farrandsville Road (State Route 18011) presently exists bordering these flats to the north (Walling Map 1862). Of these several early nineteenth century farmsteads, only the J. Hanna Stone Farmhouse (ca. 1813) survives today (compare Figures 12 and 13).

According to the available nineteenth century census records, several of these farmers owned sufficient property to place them within the upper stratum of Lock Haven society. All were native born Pennsylvanians (U.S. Census 1850 and 1870). Large households with many children and several boarders were the rule, a residential pattern with important historic archaeological implications which should be readily apparent within the discarded material remains presumably still present in a number of subsurface waste disposal facilities.

A few other farmsteads for which buildings and houses are still occupied and/or standing appeared just before and just after the turn of the twentieth century. These included: the William Hanna House (also known as the Stern House) of circa 1880; the Issac Packer Farm (ca. 1885); and the Samuel Probst Farm (ca. 1918). The latter two farms, and several other contemporary rural complexes were built near or adjacent to the Farrandsville Road. There appears to have been little, if any, subsequent development along the river following this turn of the century period until quite recently. Figure 14 illustrates a close-up view of two rural Woodward Township farmsteads taken ca. 1885. Note that the Packer Farmstead is extant while the A. Smith Farmstead is gone and would appear to be situated near the present location of several Water Valley trailers or cottages. Phase I archaeological investigations may be able to locate some remnants or features associated with this later farmstead.

Major development or building was again commenced along the river in the Monseytown and Water Valley areas about 1950 and has continued sporadically up to the present. Today, most of the standing structures clearly date to this latest period of construction. Many of the surviving dwellings are mobile homes brought into the area after the 1972 flooding created by Hurricane Agnes (Deans and McMinn 1986).

Most of the bottomlands of Monseytown and Water Valley continue to be farmed today, just as they were for the past 200 years with only technological improvements in the methods of farming. Historically, settlement has been confined to two spatially discrete areas which are located on the relatively narrow levee zone immediately adjacent to the West Branch or well back from the river along the south side of the Farrandsville Road. Presumably, these two stretches of flood plain are situated in the better drained, more permeable soil zones slightly elevated from the surrounding bottom land terrain. Twentieth century industrial/commercial activity has been limited to a lime kiln and sawmill (Deans and McMinn 1986). The sawmill

Figure 12.

General Locations of Five Farmsteads in Rural
Woodward Township ca. 1860-1870.

1) N. Welsh Whitehouse	4) J. Hanna (McGill)
2) A. Smith	5) J. Hanna
3) S. Welsh	

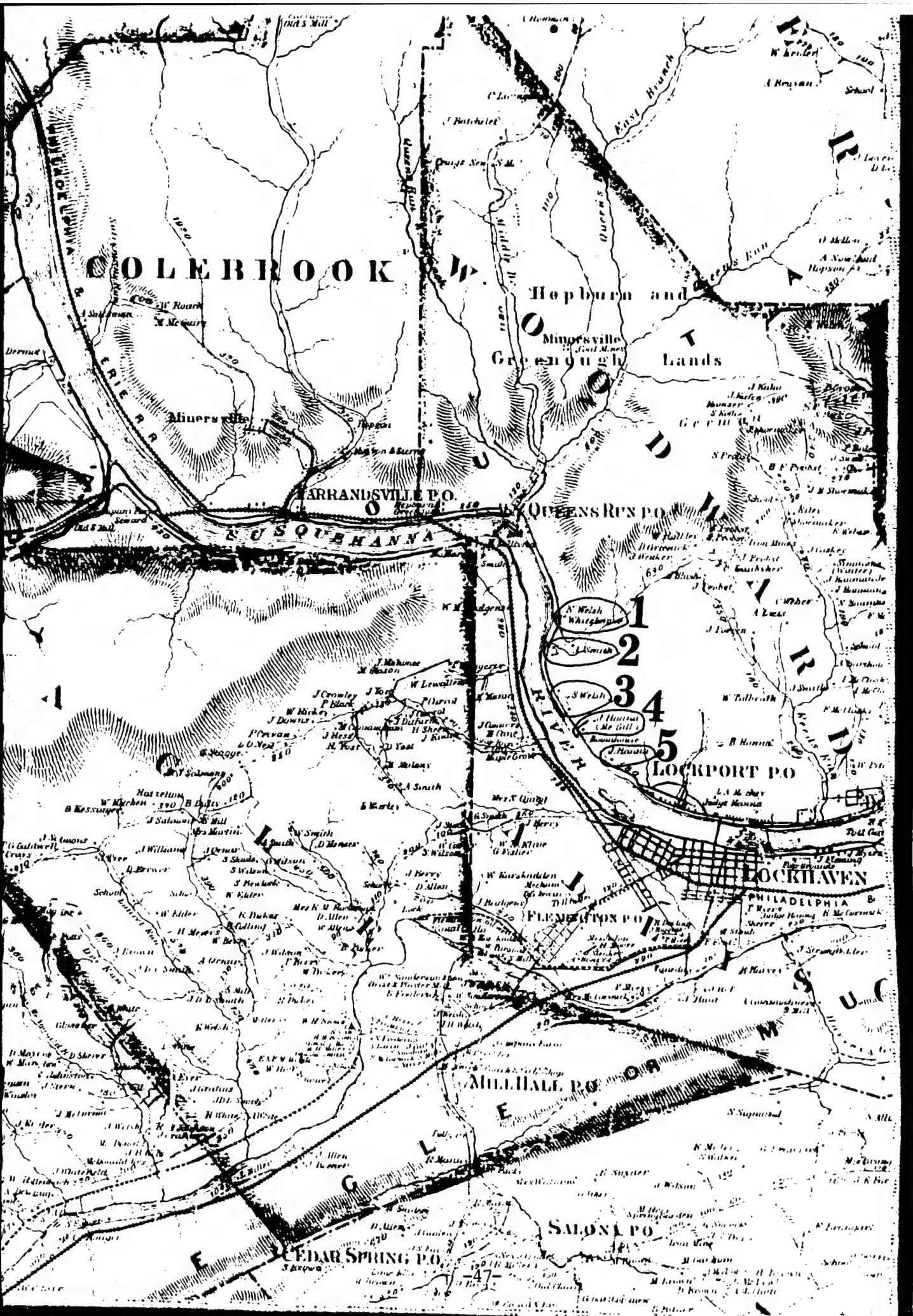


Figure 13. General View of Lock Haven and Woodward Township.
Note the Following Historically Sensitive Areas:
A) Packer Farmstead D) Stern Farmstead
B) Probst Farmstead E) Hanna Farmstead
C) Spangler Property F) Lock Keeper's House

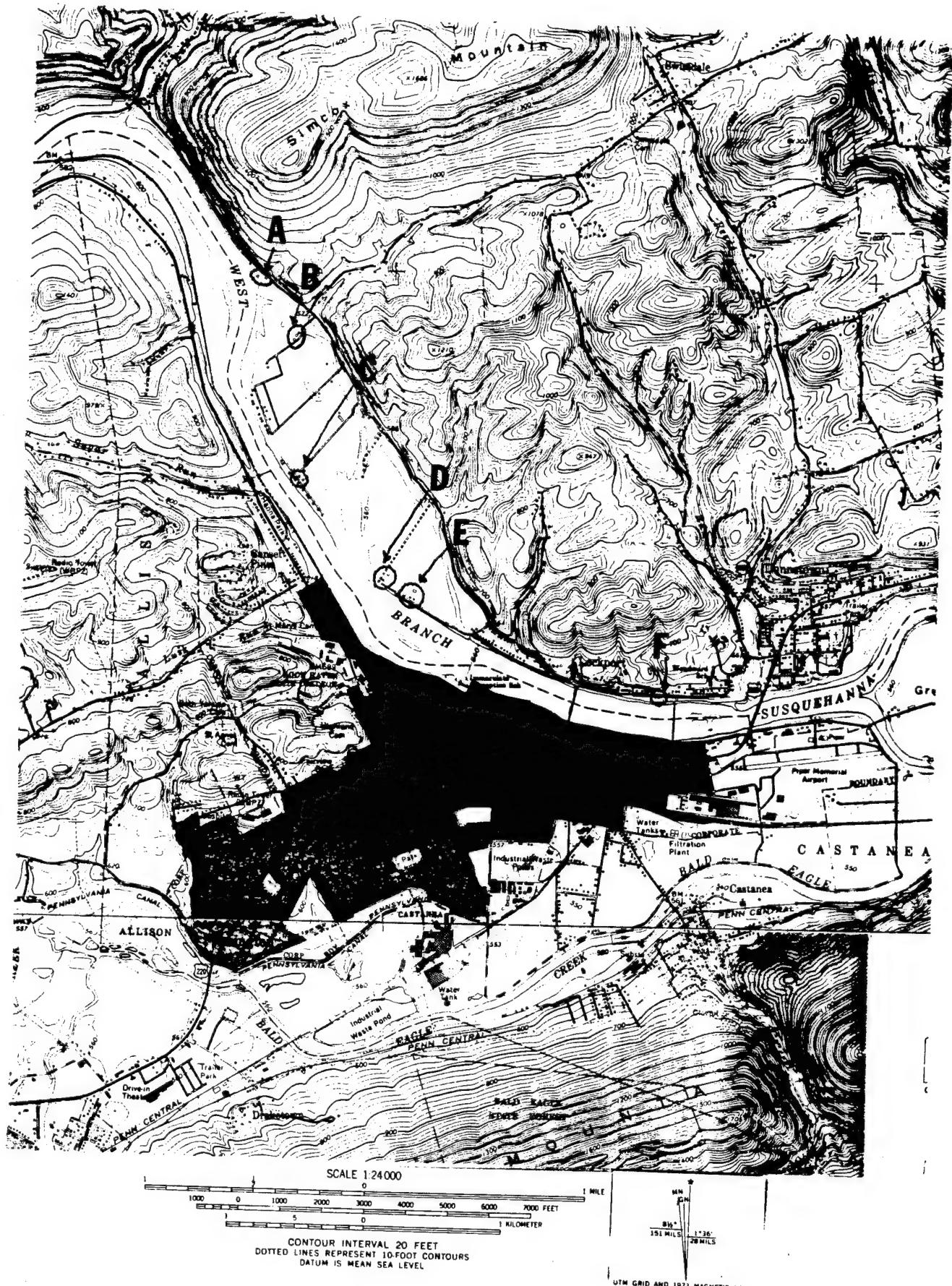
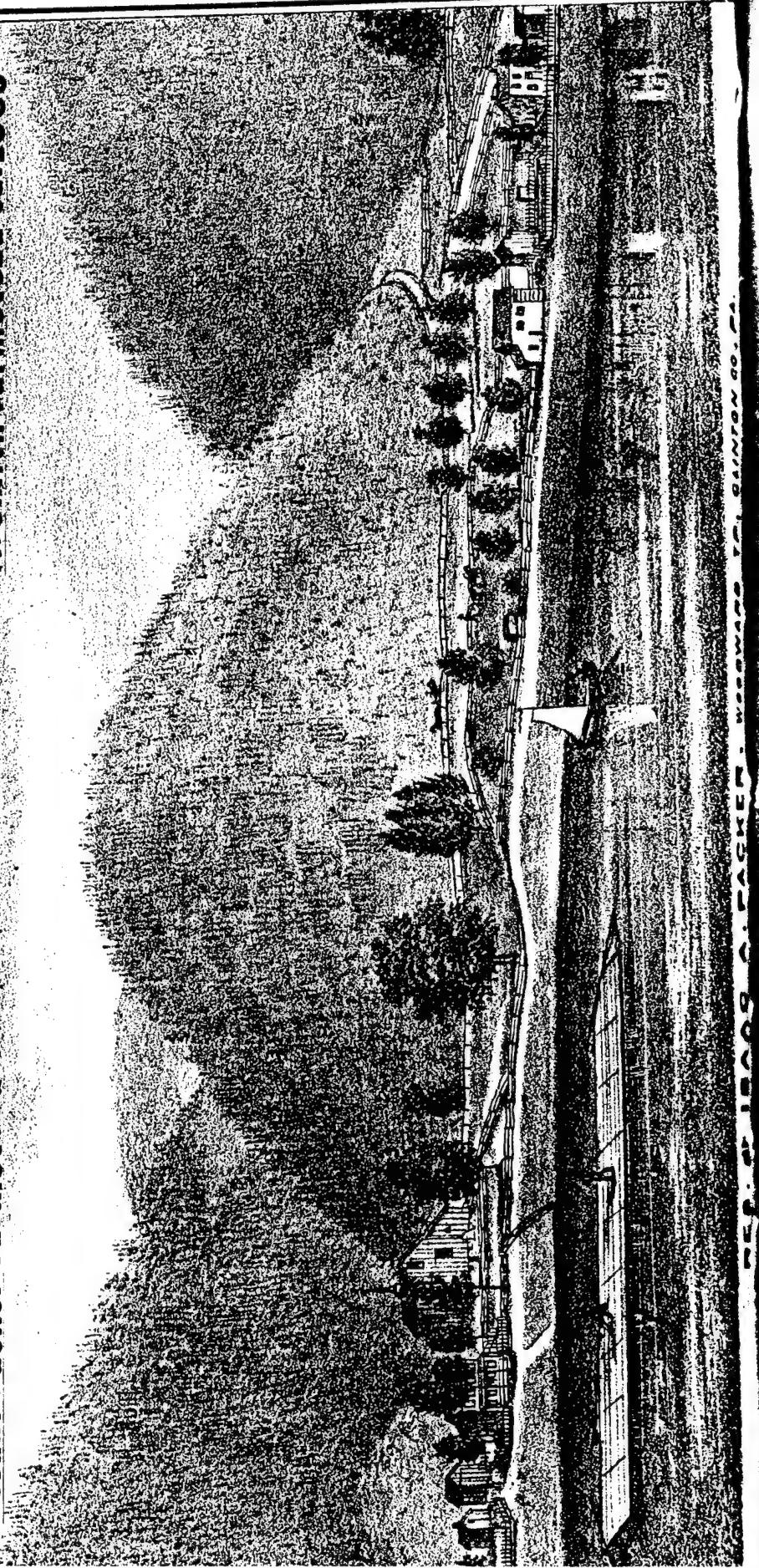


Figure 14. Illustration of the Isaac Packer and A. Smith Farmsteads in Woodward Township ca. 1885.

Isaac Packer Farmstead ca. 1885



which opened in the 1950's is still in operation, a throwback, reminiscent of the "golden period" of Lock Haven's once prosperous lumber industry. Other recent dwellings not associated with working farms in Monseytown and Water Valley generally function as seasonal cottages or house residences of commuters who work in or around the Lock Haven area.

RESEARCH QUESTIONS AND TOPICS FOR THE LOCK HAVEN STUDY AREA

In general, Lock Haven appears to be representative of the group of nineteenth century towns and cities that grew and developed along the West Branch of the Susquehanna River after the construction of the Pennsylvania Canal and which were closely tied to an expanding lumber industry. Historic period social and economic patterns established for Lock Haven and its surroundings in the nineteenth century may have been typical of those of other towns as well; therefore, research questions and topics that can be addressed here with data derived from a select sample of spatially and temporally diverse historic archaeological excavations would have potentially broader applicability to many of these other lumber towns.

A series of historical research questions and topics has been defined that might be addressed through these historic archaeological investigations in areas to be affected by the Flood Protection Project. It should be noted that actual data collection for most of these questions or topics can best be dealt with in a meaningful way at the more intensive and extensive Phase II and III levels of investigation. The purpose of Phase I investigations would be to locate and identify through survey, limited testing and documentary review/archival searches specific sites or features among all those that are to be impacted which would be the most likely to yield significant and relevant evidence within the research oriented framework that has been developed here.

The first historical topic relates to Lock Haven's strategic location which gave its residents access to a succession of transportation systems, ranging from the river itself to the canals, the railroad, and finally the modern highways and local airports. A research area of considerable importance would involve the study of the ways in which successive improvements in transportation and, by extension market accessibility, are reflected in the kinds of available consumer goods and in the overall material culture of the local residents. Investigations into this question would entail the excavation and analysis of stratified deposits of cultural materials around households, hotels, and stores. Phase I investigations would therefore be designed to locate wells, privies, refuse middens, and other relevant features that would be expected to yield an appropriate amount of significant evidence and relevant information. Only limited excavations (shovel test pits and/or 1m x 1m test units) of these features would be conducted at this Phase I stage in order to establish their integrity and obtain preliminary information pertaining to their chronological context.

It is expected that the J. Hanna Stone Farmhouse in the Monseytown area and the Lock Keeper's House in Lower Lockport would be ideal properties on which to investigate the question of changing market access in the Lock Haven area, as their occupation has continued through most or all of the successive transportation system alterations. Because of their commercial

nature which involved the importation and/or use of large quantities of consumer goods, it also is anticipated that the Hanna Hotel site in Upper Lockport and the Jacob Grafius House and Store in Lock Haven may be ideal for examining this topic.

A second and related historically significant question or topic involves the delineation of possible differences in material cultural remains and, by association lifestyles and lifeways, between contemporary nineteenth century urban and rural households in Lock Haven and Woodward Township that fall within the Project study area. It is likely that urban households may have had greater or more frequent market access to both durable and non-durable goods and may have displayed wants and needs that in many instances were different from those of rural households. Generally, aspects of the overall lifestyles of urban and rural households (as reflected in their material cultural remains) could be compared and contrasted. Intact deposits of historic cultural remains or features at both urban and rural sites should be sampled. Ideal sites for this research topic, among those to be adversely affected by the Flood Protection Project, include the J. Hanna Stone Farmhouse and/or the Packer Farmhouse, as examples of rural households, and the L.M. Mackey House and selected Lockport sites, as examples of urban households. Further, an examination of selected households in the Airport Clearance Zone might generate information about the lifestyles and lifeways of persons or groups living on the periphery of the urban area.

The socioeconomic status of historic site inhabitants often is reflected archaeologically as income and social needs tend to influence consumer choices and purchase power of durable goods. In part because nineteenth century Lock Haven was a highly stratified society, an important third historical research topic involves the investigation of archaeological reflections of status which have considerable research potential here. It is expected that documentary evidence of social and economic stratification will correlate with archaeological evidence. Several questions or topics could be addressed with regard to this research topic as a result of historic evidence recovered during Phase I investigations. First, a useful methodological exercise would entail comparing and contrasting a household's documented economic and social position with its discarded goods through techniques such as the Miller Ceramic Index. This quantitative measure can be utilized to ascertain the relative value of a ceramic assemblage, which can be compared to the documented socioeconomic status of its owner (Miller 1980).

More importantly, assemblages of recovered artifactual remains could be compared between households. For example, since the L.M. Mackey family represents the upper level of Lock Haven society, it would be expected that there would be distinct differences between the Mackey Household's discarded consumer goods and those of skilled workers or unskilled laborers in Lockport and the Airport Clearance Zone. Further comparisons could be drawn between the discarded refuse of Jacob Widmann

(Widmann-McGill House in Upper Lockport) who owned the Lockport Brewery and the material remains of one or more of his employees, many of whom lived in Upper Lockport. Again, Phase I testing would attempt to locate and identify features most likely to contain useful and significant data such as wells, privies, or refuse deposits. Subsurface architectural remains and/or features may also shed additional light on the problems of sorting and identifying socioeconomic status differences between several contemporaneously occupied areas in and around Lock Haven and Lockport.

A fourth historical research topic and related to the status/lifestyle topics would be the investigation of dietary patterns among nineteenth century residents of the Lock Haven study area. Socio-economic differences among households often are reflected in discarded faunal and/or floral remains, and the investigation of diet might shed some light on the general lifestyles of particular households or neighborhoods. Possible dietary differences between urban and rural households in the Lock Haven area could be examined. Changes over time indicative of variable market or pricing conditions could also be investigated. Ideal sites for studying these dietary topics would include several of the domestic sites previously mentioned as well as the Hanna Hotel. An historic dumping area like the Green may also provide a broad picture of kinds and quantities of consumer food elements present in the diets of nineteenth century Lock Haven residents.

A fifth research area consists of questions or topics pertaining to Lock Haven's heavy industry character and make-up, as well as the associated technology of its most important commercial industries. Specifically, this would involve an on-site examination of the probable locations of three steam sawmills and a brick factory, all situated along the south bank of the West Branch (areas now including backyards or open lots except for the brick factory which lies beneath the Immaculate Heart School and parking lot) on the north side of Water Street. All of these industrial sites will be subject to direct adverse impact. Phase I investigations would be intended to determine, via shovel probe tests, 1m x 1m test units, and/or backhoe trenches, if there are any intact subsurface architectural remains still present, and whether these would be likely to yield significant new information. At a later stage of intensive investigation or data recovery, the excavation and graphic illustration of these features might be important for examining facets of sawmill and/or brick production technology for which information is unavailable in recorded or published sources. Investigation of these heavy industries, if practical, would focus on technological processes.

The Phase I investigations in general would be extremely useful for examining land-use patterns on specific properties, as well as for delineating changes in land-use patterns over time. A sixth historical research topic entails the investigation of the manipulation of domestic space on a residential house lot or

farmstead which can provide insights into a landowner's or household owner's social and economic position, adaptive strategies, and even world view or outlook, as well as information pertaining to changes in household or farmstead composition and internal economics (Stewart-Abernathy 1986; Beaudry 1986). Additionally, the examination of the locations of outbuildings, including wells, springhouses, privies, barns, and sheds or carriage houses, as well as the documentation of general trash disposal patterns all contribute to the accumulation of the site formation data base. Significant data could be generated by comparing rural patterns of land-use with those common in urban contexts, and by developing a model or models of land-use and feature association and location within each setting. The data could be compared to existing models of land-use. An advantage of investigating this group of topics is that it would be cost-effective, as it would not involve artifact analysis. In fact, much of this research could be accomplished exclusively through more extensive and intensive documentary research, informant interviews, and on-site inspection and mapping.

Though by no means exhaustive, each of these research questions or topics represents a area of intense interest within the field of historical archaeology. Data will likely be generated for each area and/or topic as a result of the various and necessary levels or phases of archaeological investigation anticipated for the Lock Haven Flood Protection Project study areas. The level of archaeological field investigations (Phases I-III) conducted within the Project study area will ultimately depend upon a clear determination of the location and extent of the undisturbed and potentially significant historic cultural resources which can be placed in some kind of historical or temporal context. As indicated, where the appropriate data are preserved intact, the investigation of each of these topics could conceivably provide significant new information on both a regional as well as a national level, and would place the study among those in the forefront of current historic archaeological research. On a more local level, the investigation of these questions or topics will illustrate many of the important aspects of Lock Haven's historic past, ultimately, revealing social and economic patterns crucial within the context of the city's origination, development and evolution.

RESEARCH STRATEGY

In order to address most of these research questions or topics it will be necessary to locate a sufficient number of artifact-bearing features, in particular, wells, privies, and refuse deposits in direct association with households, or open lots for which adequate documentation exists. This documentation should attempt to place a particular resident or area user with their discarded refuse at a certain time period. The establishment of historic context between refuse and owner/depositor must be ascertained. This can be accomplished through a more intensive strategy of documentary and archival research, cartographic review, informant interviews, and

subsurface testing and probing. In some cases, it may be necessary and important to expose buried architectural remains that bear on one or more of the research topics. This can simply be done by expanding one or more of the shovel test probes.

Although municipal water and sewer services were available in many parts of Lock Haven, including the Water Street area, by ca. 1900 or earlier, an examination of the implementation of city ordinances indicates that some wells and privies continued to be used along Water Street and elsewhere as late as the 1930's (Lock Haven City Ordinances 26, 38, 85, 105, and 155). In Lockport, sewer service was not available until the 1950's (Marcinkevage, pers. comm. 1987). Therefore, most properties should contain features with artifactual remains dating from the nineteenth century through much of the twentieth century. The nature and character of the specific contents of each will depend upon the total length of use as well as the nature and period of construction.

In order to identify an adequate number of features likely to yield significant information, it will be necessary to conduct Phase I investigations on numerous properties in Lock Haven, Lockport, and Woodward Township. All properties to be impacted by the project should be examined to a greater or lesser extent in order to determine whether further investigation would be likely to yield significant new information. As a result of additional archival and documentary research, it is probable that some properties or features which are present in the study area may be determined as unlikely to generate significant data in terms of the proposed research questions and topics, and would, if at all, be subject to much more limited documentation and/or testing.

It is proposed that, at a minimum, the following areas should be tested. A more detailed plan of work and property selection will be prepared by the contracting agency (the Baltimore District, Corps of Engineers) and the Pennsylvania State Office of Historic Preservation. In Lock Haven, these areas include the Mackey House rear yard, the area around the Steamboat Wharf (i.e., the Green), the back and side yards as well as beneath the last two twentieth century additions of the Jacob Grafius House, a small stone foundation east of the Jay Street Bridge, and the sites of the three steam sawmills and the Queen's Run Brick Factory. Finally, in Lock Haven proper, testing should be conducted in the locations of former nineteenth century properties along the intended impact zones on Mill Street and in the Airport Clearance Zone.

In Lower Lockport, all of the properties that compose the eligible historic district and that will be adversely affected by project-related road relocation and recreation area construction or flood mitigation should be tested in order to identify potentially significant features. In Upper Lockport, the site of the Hanna Hotel and the four properties designated as potentially eligible for the National Register should undergo Phase I testing

to locate cultural features and/or architectural remains. These four properties include the McGill-Widmann House, the James McGill House, the Baney House (William Bennett House), and the Alley House (Peter Sheadle House). In addition, a stratified sample of households shown on nineteenth century maps of Lockport and determined to contain potentially significant, and undisturbed historic period cultural remains through additional archival and documentary research should be tested during Phase I field investigations. The determination of the number and exact constituents of the population of sites to be examined in-the-field would first require this documentary research combined with on-site inspection to determine if any structures are presently standing or if they have been destroyed or removed by subsequent building or landscaping activities. The investigations in Upper Lockport should permit representative historical socio-economic differences, occupational differences, and/or ethnic differences to be delineated in an archaeological context. The results of these investigations then can be compared and contrasted meaningfully to results obtained from properties examined in Lock Haven, rural Woodward Township, and the National Register eligible properties in Upper and Lower Lockport.

Elsewhere in Woodward Township, it is proposed that several nineteenth and early twentieth century rural farmsteads be investigated in order to generate data useful in addressing the research questions relating to non-urban lifeways. These would include the John Hanna Stone Farmhouse, the William Hanna Farmhouse, the Probst Farmstead, and the Packer Farmstead. Additional farmsteads that are no longer extant in Monseytown or Water Valley but which are displayed on nineteenth century maps of Woodward Township will require archival documentation followed by Phase I field testing to determine their potential significance or degree of disturbance. The extent to which Phase I field work will be undertaken here will depend ultimately on the nature of the historical remains combined with considerations of the nature of the demolition and relocation plans that will be implemented in the Monseytown and Water Valley induced flooding mitigation areas. It is anticipated that proposed additional historical documentation will be useful in determining the locations of associated structures that may be buried around the modern homes, cottages, and trailers presently situated on the sites of these former farmsteads. Informant interviews have indicated that a cemetery (either the Bartholemew or Smith Cemetery), dating to the early nineteenth century is presently located adjacent to and/or partially beneath the site of the Spangler Garage and Helicopter Hanger in Monseytown (Bartholemew, pers. comm. 1986). Should the nature of the demolition and/or relocation of houses presently located in Monseytown indicate that this cemetery would be impacted, then Phase I investigations should be undertaken in and around the Spangler property to locate any remaining grave sites.

In general, it is proposed that no Phase I testing be conducted for the purpose of exposing data from properties that were built after about 1900, as it is likely that the resulting

historic/recent period archaeological data would duplicate information from properties having continuous nineteenth through twentieth century occupations. Selected twentieth century properties should be investigated only inasmuch as they can generate significant or new information (i.e., the Probst Farm). At the Probst Farmstead, an investigation through a strategy of documentary research, on-site inspection, and informant interviews would be useful in addressing the research questions which compare twentieth century patterns of rural land-use to those which pertained in the nineteenth century (i.e., at the Hanna Farmsteads, or even at the Packer Farmstead).

In areas to be adversely impacted west of the Lock Haven Airport, it is proposed that testing be conducted around the four earliest nineteenth century houses which have been identified during Phase I architectural surveys. This testing would be intended to locate artifact-bearing cultural features associated with these houses. Additional documentary and archival research will be necessary to ensure the absence of any other early (i.e., nineteenth century) potentially significant historical properties or structures. Overall, investigations here would be expected to generate information about the material culture and land-use patterns of a working class neighborhood. These new data sets could be contrasted with results obtained for the Lockport area which apparently occupied a similar socio-economic position, in regards, to its economic character as well as its dependence on Lock Haven for commercial, industrial, and professional goods and services.

Finally, no Phase I historical field investigations are anticipated as necessary or useful in either Flemington Borough, Castanea Township, or Dunnstown. The location of the proposed levee, construction corridor, or flood mitigation zone will not impact any apparent significant historical resources in any of these project areas. The visual impacts expected to occur in Castanea Township and Flemington Borough will of course not affect archaeological resources, and in most instances can be mitigated by proper planning during levee design.

REFERENCES

Bartholemew, N.
1986 Personal Communication.

Beaudry, M. C.
1986 The Archaeology of Historical Land-Use in Massachusetts.
Historical Archaeology 20(2):38-46.

Clinton County Historic Site Survey
1985 Data Analysis Report for the Clinton County Historic Site Survey: Avis Borough, Beech Creek Borough, Flemington Borough, Mill Hall Borough, Renovo Borough, and South Renovo Borough, 1984-1985.

1986 Data Analysis Report for the Clinton County Historical Site Survey, 1985-1986: Castanea Township, Colebrook Township, Pine Creek Township, Wayne Township, Woodward Township.

Dashiell, D. A., R. Meyers, and M. Parrington
1985 Cultural Resources Survey of Lock Haven and Lockport, Clinton County, Pennsylvania: Local Flood Protection Study. Report Prepared by J. Milner Associates, Inc., 309 North Matlack Street, West Chester, PA 19380 in Association with Rogers, Golden, and Halpren, 1427 Vine Street, Philadelphia, PA 19102 and Submitted to the Baltimore District, Corps of Engineers in Fulfillment of Contract Number DACW31-82-D-0007.

Deans, T. R.
1979 Historical Resources Reconnaissance. In, Local Flood Protection for Lock Haven, Pennsylvania: Cultural and Archaeological Resources Reconnaissance. A Report Prepared by Erdman, Anthony, Associates Consulting Engineers and Planners and Submitted to the Baltimore District, Corps of Engineers in Fulfillment of Contract Number NABPL-E-43-07.

Deans, T. R. and D. McMinn
1986 Architectural Intensive Survey of Lock Haven, Lockport, and Flemington, Clinton County, Pennsylvania. Draft Report Prepared by T. R. Deans Associates, 311 N. Front Street, Milton, PA 17847 and Submitted to the Baltimore District, Corps of Engineers in Fulfillment of Contract Number DACW31-86-M-1337.

Furey, J. M.
1892 Past and Present Clinton County. Pennsylvania Government Printing House, Williamsport, Pennsylvania.

Greevy and Renner
1874 Greevy and Renner's Directory of the City of Lock Haven, 1874-1875. Greevy and Renner, Altoona, Pennsylvania.

Hay, C. A., J. W. Hatch, and C. Stevenson
1979 Archaeological Resource Reconnaissance. In, Local Flood Protection for Lock Haven, Pennsylvania: Cultural and Archaeological Resources Reconnaissance. A Report Prepared by Erdman, Anthony, Associates Consulting Engineers and Planners and Submitted to the Baltimore District, Corps of Engineers in Fulfillment of Contract Number NABPL-E-43-07.

Hay, C. A. and R. C. Cronce
1986 Lock Haven Phase I and II Prehistoric Cultural Resources Inventory and Intensive Survey: Volumes I and II. A Report Prepared by Archaeological and Historical Consultants, Inc. for Greiner Engineering Services, Inc. and Submitted to the Baltimore District, Corps of Engineers.

Israel, S. S.
1979 Cultural Resources Reconnaissance Report on Lockport. In, Local Flood Protection for Lock Haven, Pennsylvania: Cultural and Archaeological Resources Reconnaissance. A Report Prepared by Erdman, Anthony, Associates Consulting Engineers and Planners and Submitted to the Baltimore District, Corps of Engineers in Fulfillment of Contract Number NABPL-E-43-07.

Linn, J. B.
1883 History of Centre and Clinton Counties, Pennsylvania. Philadelphia: J. B. Lippincott and Co.

Marcinkevage, R.
1987 Personal Communication.

Maynard, D. S.
1875 Historical View of Clinton County from Its Earliest Settlement to the Present Time. Enterprise Printing House, Lock Haven.

Miller, G. L.
1980 Classification and Scaling of 19th Century Ceramics. Historical Archaeology 14: 1-41.

Miller, I. W.
1966 Old Town: A History of Early Lock Haven from 1769-1845. Annie Halenbake Ross Library, Lock Haven, Pennsylvania.

Ordinances and General Ordinances of the City of Lock Haven, Pa.
Various Dates

Richie and Stranahan
1869 Map of Lock Haven, Flemington, and Lockport. Richie and Stranahan. Philadelphia.

Sanborn Insurance Company
1885 Sanborn Insurance Map of Lock Haven 1885. Sanborn Map Company, 117 Broadway, New York.

Sanborn Insurance Company (continued)
1891 Sanborn Insurance Map of Lock Haven 1891. Sanborn Map Company, 117 Broadway, New York.

1901 Sanborn Insurance Map of Lock Haven 1901. Sanborn Map Company, 117 Broadway, New York.

1906 Sanborn Insurance Map of Lock Haven 1906. Sanborn Map Company, 117 Broadway, New York.

1925 Sanborn Insurance Map of Lock Haven, Mill Hall, Flemington, Woorich, Lockport and Castanea, Clinton County, Pennsylvania 1925. Sanborn Map Company, 117 Broadway, New York.

Sanborn-Peris Map Company
1896 Insurance Map of Lock Haven, Clinton County, Pennsylvania
Sanborn-Peris Map Company, Ltd.

Sesquicentennial Book
1983 The Sesquicentennial Book of Lock Haven, Pennsylvania 1833-1983. Lock Haven Sesquicentennial, Inc. Lock Haven, Pennsylvania.

Stewart-Abernathy, L. C.
1986 Urban Farmsteads: Household Responsibilities in the City. Historical Archaeology 20(2): 5-15.

Thernstrom, S.
1973 The Other Bostonians: Poverty and Progress in the American Metropolis, 1880-1970. Harvard University Press, Cambridge, Ma.

Thornton and Xander
1895 Thornton and Xander's Directory of Lock Haven, Flemington, Dunnstown, Etc.: 1895. Thornton and Xander, Lock Haven, Pennsylvania.

U.S. Bureau of the Census
1850 Manuscript Census Schedules, Pennsylvania: Clinton Co.
1870 Manuscript Census Schedules, Pennsylvania: Clinton Co.

Vendel Enviro-Industrial Consultants, Inc.
1987 A Disturbance Report for the Lock Haven Flood Protection Project Impact Areas. A Report Prepared for the Baltimore District, Corps of Engineers.

Wagner, D. R. (editor)

1982 Historic Lock Haven: An Architectural Survey. Clinton
County Historical Society, Lock Haven, Pennsylvania.

Walling, H. F.

1862 Map of Clinton County, Pennsylvania. From Actual Surveys
Under the Direction of H. F. Walling. Way Palmer and Co.

APPENDIX A : OCCUPATIONAL CLASSIFICATION (after Thernstrom 1973:289-292).

High White-Collar Occupations

Attorney	Government Official (upper ranks)
Banker	Hotel Keeper
Builder/Contractor	Lumberman (Lumber Manufacturers or Lumber Dealers)
Civil Engineer	
Clergyman/Minister	Manufacturer
Corporation Official	Pharmacist/Druggist
Dentist	Physician
Editor	Teacher

Low White-Collar Occupations

Accountant	Misc. Merchants
Agent	Musician
Artist	Newspaperman/Reporter
Baggageman/Baggage Master	Photographer
Bank Teller	Railroad Conductor
Bookkeeper	Restaurant
Cashier	Salesman
Clerk	Saloon
Clothier	Secretary
Dispatcher	Sportsman
Foreman	Storekeeper
Government Official (lower ranks)	Surveyor
Grocer	Tobacconist
Huckster/Peddler	Writer
Journalist	

Skilled Occupations

Baker	Mechanic
Blacksmith/Farrier	Miller
Boat Builder	Millwright
Boilermaker	Miner
Bookbinder	Moulder
Brewer	Painter
Bricklayer/Mason	Pavement Layer
Butcher	Plasterer
Cabinet Maker	Plumber
Carpenter	Potter
Carpet Weaver	River Pilot
Compositor/Printer	Saddler
Confectioner	Sawyer
Cooper	Shoemaker
Engineer (Locomotive or Stationary)	Stonecutter
Engraver	Tailor
Gunsmith	Tanner
Harness Maker	Tinner
Jeweler	Upholsterer
Locomotive Fireman	Wagonmaker/Coachmaker
Machinist	Watchmaker

Semi-Skilled Occupations

Apprentice	Policeman
Barber	Railroad Brakeman
Bartender	Railroad Flagman
Cigar Maker	Sailor/Boatman
Cook	Saw Filer
Deliveryman	Soldier (exc. officers)
Driver	Teamster
Fireman (Stationary or City)	Watchman/Guard
Janitor	
Operative/Operator	

Unskilled Occupations

Gardener	Lumberman (woodsman)
Laborer	Porter
Liveryman/Hostler	Servant

Unclassified Occupations

Farmer	Works in Planing Mill
Foundryman	Works in Mill
Works in Foundry	Works on Railroad